

## **Historic, Archive Document**

Do not assume content reflects current scientific knowledge, policies, or practices.







.3

p.3

If you do not need this publication after it has served its purpose, please return it to the U. S. Soil Conservation Service using the official mailing label at the end.

HYDROLOGIC BULLETIN NO. 3

ISSUED 1942

# HYDROLOGIC DATA

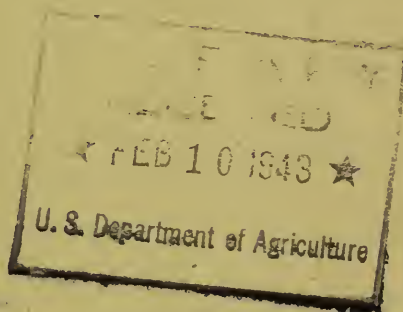
CENTRAL GREAT PLAINS EXPERIMENTAL WATERSHED  
HASTINGS, NEBRASKA

1938-40

35 m 42

BY

HYDROLOGIC DIVISION  
OFFICE OF RESEARCH  
SOIL CONSERVATION SERVICE



UNITED STATES DEPARTMENT OF AGRICULTURE

WASHINGTON, D. C.







UNITED STATES DEPARTMENT OF AGRICULTURE  
WASHINGTON, D. C.

+

HYDROLOGIC BULLETIN NO. 3

# HYDROLOGIC DATA

CENTRAL GREAT PLAINS EXPERIMENTAL WATERSHED  
HASTINGS, NEBRASKA

1938-40

BY

HYDROLOGIC DIVISION  
OFFICE OF RESEARCH  
SOIL CONSERVATION SERVICE



ISSUED 1942

UNITED STATES GOVERNMENT PRINTING OFFICE  
WASHINGTON : 1942



# CONTENTS

	Page	Table	Page
Introduction.....	1	15. Land use distribution in each watershed, 1938.....	27
Description of the project.....	2	16. Land use distribution in each watershed, 1939.....	27
Period of record.....	2	17. Land use distribution in each watershed, 1940.....	28
Units and definitions.....	3	18. Semimonthly record of the general condition of the cover and soil through-	
Precipitation.....	3	out the watershed, 1938.....	28
Humidity.....	3	19. Semimonthly record of the general condition of the cover and soil through-	
Run-off.....	3	out the watershed, 1939.....	29
Land use.....	3	20. Semimonthly record of the general condition of the cover and soil through-	
Farming practices.....	3	out the watershed, 1940.....	30
Instrumentation and methodology.....	4	21. Daily run-off for all watersheds, 1938.....	30
Precipitation.....	4	22. Daily run-off for all watersheds, 1939.....	31
Run-off.....	4	23. Daily run-off for all watersheds, 1940.....	32
Soil moisture.....	7	24. Run-off from watershed 3, 1938-40.....	34
Cover and cultivation.....	7	25. Run-off from watershed 8, 1938-40.....	42
Other meteorological records.....	7	26. Run-off from watershed 11, 1939-40.....	47
Graphic data.....	7	27. Run-off from watershed 5, 1939-40.....	53
Tabular data.....	19	28. Run-off from watershed 1-H, 1939-40.....	57
Explanation of tables.....	19	29. Run-off from watershed 2-H, 1939-40.....	58
Tables.....	19	30. Run-off from watershed 3-H, 1939-40.....	59
		31. Run-off from watershed 4-H, 1939-40.....	67
		32. Run-off from watershed 5-H, 1939-40.....	71
		33. Run-off from watershed 6-H, 1939-40.....	74
		34. Run-off from watershed 7-H, 1939-40.....	78
		35. Run-off from watershed 8-H, 1939-40.....	80
		36. Run-off from watershed 9-H, 1939-40.....	83
		37. Run-off from watershed 10-H, 1939-40.....	85
		38. Run-off from watershed 11-H, 1939-40.....	87
		39. Run-off from watershed 12-H, 1939-40.....	88
		40. Run-off from watershed 13-H, 1939-40.....	91
		41. Run-off from watershed 14-H, 1939-40.....	94
		42. Run-off from watershed 15-H, 1939-40.....	97
		43. Run-off from watershed 16-H, 1939-40.....	100
		44. Run-off from watershed 17-H, 1939-40.....	102
		45. Run-off from watershed 18-H, 1939-40.....	105
		46. Run-off from plot 51-H, 1939-40.....	108
		47. Run-off from plot 52-H, 1939-40.....	110
		48. Run-off from plot 53-H, 1939-40.....	111
		49. Run-off from plot 54-H, 1939-40.....	112
		50. Run-off from plot 55-H, 1939-40.....	114
		51. Run-off from plot 56-H, 1939-40.....	115
		52. Run-off from plot 57-H, 1939-40.....	117
		53. Run-off from plot 58-H, 1939-40.....	119
		54. Rainfall at station A31R for storms producing run-off, 1938-40.....	120
		55. Rainfall at station B28R for storms producing run-off, 1939-40.....	122
		56. Rainfall at station B32R for storms producing run-off, 1939-40.....	124
		57. Rainfall at station B33R for storms producing run-off, 1939-40.....	125
		58. Rainfall at station B36R for storms producing run-off, 1939-40.....	127
		59. Rainfall at station B38R (central meteorological station) for all storms,	
		1939-40.....	129
		60. Rainfall at station C23R for storms producing run-off, 1939-40.....	133
		61. Rainfall at station C24R for storms producing run-off, 1939-40.....	134
		62. Rainfall at station C29R for storms producing run-off, 1938-39.....	137
		63. Rainfall at station C31R for storms producing run-off, 1938-40.....	137
		64. Rainfall at station C45R for storms producing run-off, 1939-40.....	140
		65. Rainfall at station D31R for storms producing run-off, 1938-40.....	141
		66. Rainfall at station D45R for storms producing run-off, 1939-40.....	143
		67. Rainfall at station E30R for storms producing run-off, 1939-40.....	144
		68. Rainfall at station G42R for storms producing run-off, 1939-40.....	146

## MAPS AND CHARTS

Figure	
1. Location of watersheds and rain gages in Beaver Creek drainage basin.....	5
2. Location of watersheds and instrumentation on Government land.....	6
3. Land use and watersheds in Beaver Creek drainage basin, 1939-40.....	8
4. Land use and watersheds on Government land, 1939.....	9
5. Land use and watersheds on Government land, 1940.....	10
6. Isohyetal map of the 1 p.m. storm of June 20, 1939, on Beaver Creek drain-	
age basin.....	11
7. Isohyetal map of the 4 p.m. storm of June 20, 1939, on Beaver Creek drain-	
age basin.....	12
8. Isohyetal map of the storm of May 17, 1940, on Beaver Creek drainage	
basin.....	13
9. Isohyetal map of the storm of June 8, 1940, on Beaver Creek drainage basin.....	14
10. Rainfall and run-off for watershed 7-H, June 20, 1939.....	15
11. Rainfall and run-off for drainage area above gaging station 3, June 20, 1939.....	16
12. Rainfall and run-off for watershed 7-H, May 17, 1940.....	17
13. Rainfall and run-off for drainage area above gaging station 3, May 17, 1940.....	18

## TABLES

Table	
1. Monthly and annual meteorological data, 1939-40.....	19
2. Monthly evaporation, wind movement, and relative humidity at the cen-	
tral meteorological station, 1939-40.....	19
3. Daily maximum, minimum, and average temperature, 1939.....	20
4. Daily maximum, minimum, and average temperature, 1940.....	20
5. Daily precipitation at recording stations, 1938.....	21
6. Daily precipitation at recording stations, 1939.....	22
7. Daily precipitation at recording stations, 1940.....	23
8. Excessive rainfall at the central meteorological station, 1939-40.....	24
9. Soil-moisture content at designated depths, watersheds 1-H to 17-H, 1939.....	25
10. Soil-moisture content at designated depths, watersheds 1-H to 18-H, 1940.....	25
11. Soil-moisture content at designated depths in pasture plots 51-H, 52-H,	
53-H, and 54-H, 1939.....	25
12. Soil-moisture content at designated depths in pasture plots 51-H to 58-H,	
1940.....	26
13. Area, elevation, length, slope, soil, and land use for all watersheds, 1939-40.....	26
14. Instrumentation for each watershed.....	27



UNITED STATES DEPARTMENT OF AGRICULTURE

Hydrologic Bulletin No. 3

Washington, D. C.

Issued 1942

# HYDROLOGIC DATA: CENTRAL GREAT PLAINS EXPERIMENTAL WATERSHED, HASTINGS, NEBRASKA, 1938-1940

*By Hydrologic Division, Office of Research, Soil Conservation Service*

## INTRODUCTION

This publication is the first of a series of annual bulletins presenting basic hydrologic data collected at the Central Great Plains Experimental Watershed near Hastings, Nebr. This project is one of several similar projects in the United States at which the hydrologic and agricultural problems within the field of the Soil Conservation Service are being studied. Later publications presenting analyzed data and the results of the several studies will follow in this series.

The hydrologic data presented in this bulletin are being collected primarily to determine the effect of agricultural land use practices on the conservation of soil and water and on floods. These data are also needed for economically designing the erosion, flood-control, and hydraulic structures used in the general soil- and water-conservation program. Available data for these uses are extremely meager. Without such data it is impossible to make accurate estimates of the

magnitude of the run-off which must be handled by the channels, spillways, check dams, culverts, stock ponds, and other hydraulic works in water-facilities and soil- and water-conservation operations. The lack of dependable information on run-off often results in the complete failure of such works. Even more frequent perhaps, insufficient information leads to the use of unnecessarily high factors of safety in the design of structures and thus to unjustifiably high costs. These data will be useful not only to agencies of the Department of Agriculture but also to many other Federal agencies, States, municipalities, private companies, and individuals in planning works and structures that depend for their safety and economy on a knowledge of run-off rates and amounts for which provisions must be made.

In connection with this work, run-off measuring stations with attendant rain gages were established on areas ranging in size from 0.69-acre plots to natural

**ACKNOWLEDGMENTS.**—The work on this experimental watershed was done in cooperation with the Nebraska Agricultural Experiment Station, W. W. Burr, director, and F. D. Keim, chairman of the Department of Agronomy. Valuable assistance was given by F. L. Duley of the conservation experiment station in Lincoln, Nebr., by various technicians of the College of Agriculture of the University of Nebraska, and by the personnel of the regional, State, and area offices of the Soil Conservation Service.

The data in this bulletin were collected by the project staff of the Central Great Plains Experimental Watershed under the direction of R. R. Drake, project supervisor, and assembled for publication by J. A. Allis, hydraulic engineer in charge of hydrologic investigations, assisted by L. L. Kelly, R. O. Baum, Victor Mockus, L. B. Kent, and others. Assistance in collecting the records was also given by Earl C. Myers, Ralph Gaebe, and Mark Santi, who were employed at this project. General direction for the collection and preparation of the data originated from H. R. Leach and L. L. Harrold of the Washington office, Hydrologic Division, C. E. Ramser, chief.



watersheds of 3,490 acres. The watersheds for which records are included in this bulletin are listed below:

Mixed cover watershed:	Acres	Single crop watershed:—Con.	Acres
3-----	481	12-H-----	3. 66
8-----	2, 086	13-H <sup>1</sup> -----	3. 41
11-----	3, 490	14-H-----	3. 35
5-----	411	15-H-----	3. 62
Single crop watershed:		16-H-----	3. 57
1-H-----	3. 62	17-H-----	3. 96
2-H-----	3. 40	18-H-----	3. 74
3-H <sup>1</sup> -----	3. 95	51-H-----	. 69
4-H-----	3. 84	52-H-----	. 69
5-H <sup>1</sup> -----	3. 93	53-H-----	. 69
6-H-----	4. 16	54-H-----	. 69
7-H-----	4. 15	55-H-----	. 69
8-H-----	3. 93	56-H-----	. 69
9-H-----	3. 78	57-H-----	. 69
10-H-----	3. 98	58-H-----	. 69
11-H-----	3. 85		

<sup>1</sup> Strip cropped in 1939.

## DESCRIPTION OF THE PROJECT

An area known locally as the Beaver Creek watershed, about 25 miles south of Hastings, Nebr., in the Republican River basin, was selected for the hydrologic studies. The area is considered to be representative of the loessial region of the central Great Plains lying in central Nebraska and central South Dakota, and also to some extent of certain regions of western Nebraska, eastern Colorado, northern Oklahoma, Kansas and North Dakota. The experimental area lies in latitude 40°14' north; elevations range from 1,800 to 2,000 feet above mean sea level.

The stream system consists of two forks which unite a short distance below the present project area. These two forks, with their many small feeder drains, have split the area into long tongues of gently rolling uplands. Land of less than 5-percent slope occurs on 47 percent of the area, and land steeper than 12 percent occurs on only 6 percent of the area. The drainage pattern of all the watersheds is fairly well defined.

The parent material of all the soils of the watershed except the Nuckolls is Peorian loess. This deposit ranges up to 30 feet in depth. Beneath the Peorian, or exposed in the Nuckolls soil, is the loessial phase of the Loveland formation which ranges up to 90 feet or more in depth. The wide range in depth of the two loessial deposits is due to the irregularities of the surface on which deposition took place as well as to irregularities of the present terrain. The depth of the combined loessial deposits is probably never less than 20 feet. Most of the soils have deep friable topsoils, usually with a silt loam texture. The percentage of each of the predominant soil types are: Hastings silt loam, 58; Holdrege silt loam, 10; Colby silt loam, 7; and Judson

silt loam, 6. The remaining area is made up of other closely related types.

Observation indicates that on similar topography these soils vary but little in fertility and productivity. Limited data show no differences in the rates of infiltration of the different soils. Protection of the soil surface by grasses, growing crops, or mulches will maintain rather high infiltration rates, but when this protection is lacking a rain of fairly high intensity will quickly puddle the surface layers of soil, reduce the infiltration rate, and increase run-off.

The water table lies at a depth of 40 to 120 feet. No water is lost from the soil surface by percolation to the water table and no accretion to stream flow comes from the water table.

The climate of this area is characterized by cold, relatively dry winters, hot summers, fairly heavy summer rainfall, relatively low humidity, and a moderately long frost-free growing season. The mean annual temperature at Hastings for a period of 46 years (1895-1940) is 50.6°F., and the mean annual precipitation for the same period is 24.54 inches. Approximately 74 percent of the precipitation occurs in the 6 months from April to September. The high intensities of the summer rains and the hot winds during the dry periods between the storms constitute a serious agricultural problem. Ordinarily, because of the winter winds which blow the snow from the smooth fields of winter wheat and other fields with sparse cover, little of the moisture from snow becomes available for crop growth. Consequently, yields of winter wheat are dependent on moisture that has accumulated in the soil between the time of harvest and the beginning of winter.

About 20 percent of the area in Beaver Creek watershed is in permanent native-grass pastures, 4 is in permanent native-grass meadow, 73 is under cultivation, and the remaining 3 is in miscellaneous uses such as roads and farmsteads. Of the area under cultivation, between 70 and 80 percent is in corn and winter wheat, the latter predominating.

## PERIOD OF RECORD

The period covered is from the beginning of operation of the installations on the different watersheds in 1938 and 1939, to December 31, 1940. This commences with run-off station 3, below a mixed-cover watershed of 481 acres, on July 16, 1938, followed by station 8, below a mixed-cover watershed of 2,086 acres, on July 27, 1938. Run-off stations 11 and 5 and the small 3-acre watersheds and plots were placed in operation early in 1939.

## GENERAL CLIMATE DURING THE PERIOD OF RECORD

Weather conditions for 1939 were warm and dry and unfavorable for crop production. Low rainfall, dry hot



winds, and previous drought conditions resulted in a failure of many of the crops on the watershed as well as in the surrounding territory. The total rainfall was 14.7 inches, which was almost 10 inches below normal. The United States Weather Bureau reports only two warmer years, 1931 and 1934, since the beginning of records in Nebraska.

Weather conditions for 1940 were dry and unfavorable for crop production. January was the coldest in

more than 50 years with an average temperature of 8 ° F. On November 11 a severe blizzard occurred, killing livestock and poultry and damaging trees and some grain. With the above exceptions the temperatures were above normal. Low rainfall, dry hot winds, and previous drought conditions resulted in a failure of much of the crop on the watershed as well as in the surrounding territory. The total rainfall was 12.2 inches, which was about one-half of the normal.

## UNITS AND DEFINITIONS

[All time referred to in this bulletin is central standard time]

**DRAINAGE AREA, DRAINAGE BASIN, and WATERSHED**—The area drained by a stream system above a designated point on the stream. In this bulletin these terms are used synonymously.

### PRECIPITATION

**AMOUNT**—The total rainfall that falls in a given period expressed in inches depth. Snow and hail are expressed in inches depth of their water equivalent.

**INTENSITY or RAINFALL RATE**—The average rate at which the precipitation falls for a given time interval, generally expressed in inches per hour.

### HUMIDITY

**RELATIVE HUMIDITY**—The amount of moisture present in the atmosphere expressed as a percentage of the maximum amount of water vapor that the atmosphere could contain without condensation under the same conditions of temperature and pressure.

### RUN-OFF

In this bulletin, rates of flow are expressed as discharge in second-feet (cubic feet per second) or run-off in inches per hour. Amounts of run-off are given in inches depth on the drainage area.

**SECOND-FEET**—The volume of water in cubic feet that passes a given section of a stream in 1 second. Second-feet and cubic feet per second are synonymous.

**INCHES PER HOUR**—The depth, in inches, to which the amount of water passing a given section of a stream in a given time interval would cover the drainage area above that section if the water flowed at the same average rate for 1 hour.

**RUN-OFF IN INCHES**—The depth in inches to which the drainage area would be covered if the amount of water flowing from it in a given period were uniformly distributed on its surface.

### LAND USE

**PASTURE**—Grassland used for grazing.

**MEADOW**—Land from which hay is obtained.

**STOOLING**—The stage of development in plants of the grass family during which additional shoots are extended from the crown at the base of the stem.

**FLOWERING**—The stage of plant development at which 50 percent or more of the plants are in flower.

**SEED STAGE**—The stage of plant development at which the seed is fully developed.

**SOFT DOUGH**—The stage of seed development in the small grains during which the seed has attained its full size but is still soft and pasty.

**HARD DOUGH**—The stage of seed development in the small grains at which the plants are coming into full maturity. The seeds are hardening and the stems and leaves still have at least 60 percent of their moisture.

**LODGING**—Plants laid flat on the ground by the action of wind and rain.

## FARMING PRACTICES

The crop rotation generally used is corn; oats, barley, or fallow; and winter wheat. In the drought years since 1934, sorghum has tended to replace corn. Soil moisture is the limiting factor in crop production. When the moisture conditions are extremely favorable it is common practice to ignore the rotation and plant the crop, either corn or wheat, that will produce the largest cash income.

The ground for corn, commonly grain stubble, is usually disked between April 15 and 25. The land then lies idle until sometime between May 1 and June 10 when the corn is planted with a lister planter in rows 42 inches apart. The corn is planted about 1 inch deep in the bottom of a furrow about 5 inches deep. The soil from the furrow then forms a ridge between the rows of corn. Cultivations, usually three, gradu-



ally level the soil from the ridge to the furrow. Some of the corn is used for silage and fodder, but the greater part is left standing in the field and husked in the late fall. The stalks then remain standing in the field until the following spring when the land is planted to oats or barley, fallowed, or, if the moisture conditions are favorable, replanted to corn.

The ground for oats or barley, usually cornstalk ground, is double-disked in the spring as soon as the soil becomes suitable for working, about March 20 to April 10. The grain is immediately seeded at the rate of 50 to 80 pounds of oats per acre, or 72 to 120 pounds of barley per acre. Oats and barley, which mature between June 20 and July 5, are cut with a binder, shocked, and threshed. The straw is saved for bedding or feed, or is burned.

Winter wheat is planted between September 20 and October 5 on fallow ground or on ground that has been in small grain in the spring and summer. Land that has been in small grain is prepared for wheat by plowing as soon after harvest as possible, usually about July 15,

and by subsequent disking and harrowing to provide a smooth, firm seedbed and to control weeds. The wheat matures in the latter part of June or the first part of July. It is harvested in the same manner as other grains.

The sorghums are planted between June 1 and June 15. They may be planted in rows in the same manner as corn, or drilled as grain. Those planted in rows are ordinarily used for grain and those which are drilled are used for forage. Sorghums reach maturity between August 15 and November 1.

The meadows are of native grass consisting mostly of blue grama and side-oats grama. These grasses seldom grow over 1 foot high. Only one crop of hay is taken from the meadow each year, and in drought years many meadows are not cut. The time of cutting depends on the season and may be between July 1 and November 1.

The pastures are also of native grass, consisting mostly of buffalo grass and blue grama. In drought years the pastures have been badly overgrazed. The grass seldom reaches a height of over 2 to 3 inches.

## INSTRUMENTATION AND METHODOLOGY

### PRECIPITATION

At the end of December 1940 there were 14 rainfall stations recording rainfall intensities and amounts and 32 additional stations giving amounts only. The location of these rainfall stations is shown on figures 1 and 2.

### MEASURING DEVICES

Rainfall amounts are measured in United States Weather Bureau 8-inch standard rain gages and recorders that are exposed in accordance with specifications of the Hydrologic Division. Each gage is mounted on a permanent base in the center of a woven-wire enclosure 8 feet square. The standard gages are read once daily at 8 a. m. by local, paid observers.

Rainfall intensities are measured by Fergusson recording rain and snow gages having a depth capacity of 9 inches and operating on chart scales of 1 inch equals 32 minutes and of 1 inch equals 0.67-inch depth of rainfall. All recording rain gages are serviced by the project personnel. A typical rainfall station is shown in plate 1, *B*.

Snowfall is measured directly by the Fergusson recording rain and snow gages. In the nonrecording rain gages the snow catch is melted to determine water-depth equivalent.

Intensity records from individual gages are computed for each regular clock 5-, 10-, 15-, 30-minute, or 1-hour interval, or multiples thereof, during which rain fell at uniform intensity. In addition, for gages serving areas

of less than 10 acres, the individual intensities are computed for 1-, 2-, 3-, or 4-minute periods when rainfall during the regular intervals was not of uniform intensity.

### ACCURACY OF RECORDS

Records of rainfall intensity and depth are good for 1938, 1939, and 1940 except for winter records of snowfall, which are fair.

### RUN-OFF

At the end of December 1940 records of run-off rates and amounts were being maintained for 30 watersheds. The watershed boundaries and the location of the run-off measuring stations are shown in figures 1 and 2.

### MEASURING DEVICES

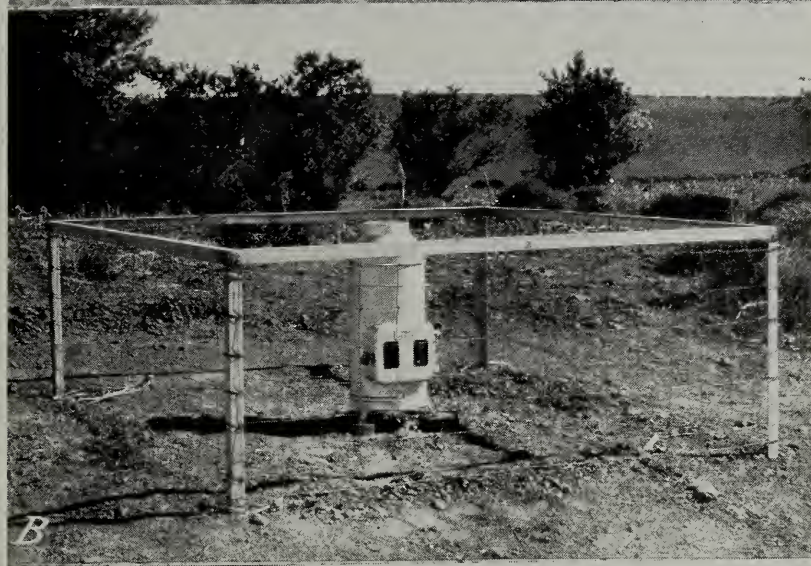
Two kinds of run-off measuring stations are in operation: (1) Those having flow-measuring devices that have been previously calibrated, and (2) those requiring field calibration by means of current-meter measurements of discharge.

The only type of precalibrated flume installed on this project is the H flume, which was designed by the Soil Conservation Service to measure rates of flow up to 30 second-feet. It is shown in plate 1, *C* and *D*, and consists of converging vertical side walls cut back on a slope at the outlet so as to give a trapezoidal projection of the outlet. The H flume was calibrated in hydraulic laboratories by the Soil Conservation Service and was

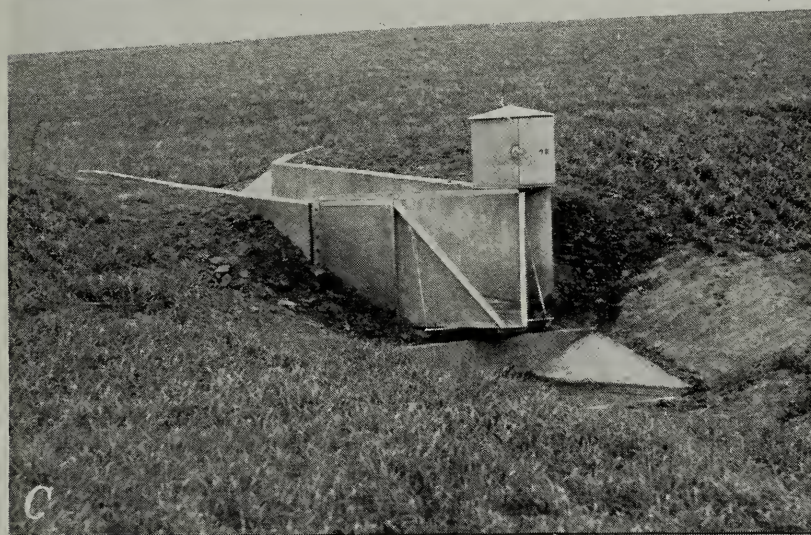




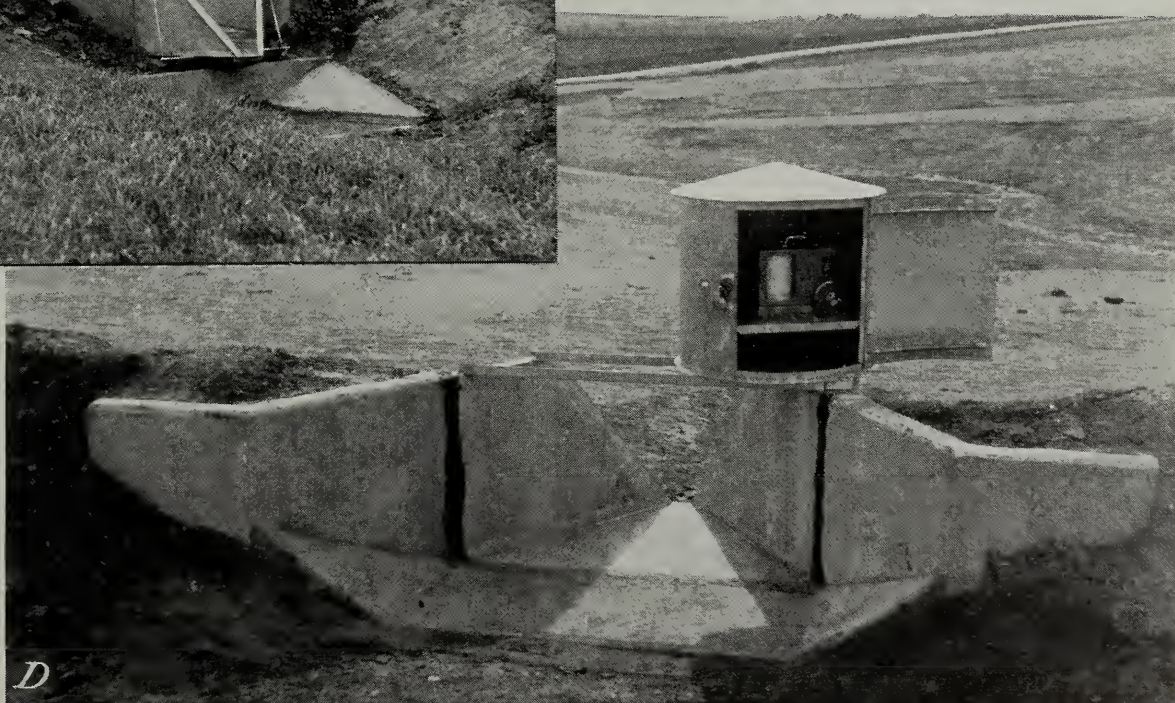
A, The central meteorological station showing instrument shelter, anemometer, rain gages, and evaporation pans.



B, A typical installation of a Fergusson recording rain and snow gage



C A 3-foot H flume and approach box.



D, A run-off measuring station with a 2-foot H flume and FW-1 water-stage recorder. The approach grading is not finished.





A, Run-off station 3: Looking upstream at the 1-on-3 broad-crested V-notch control, over overflow section, and submergence gage;  
B, flow of approximately 95 cubic feet per second, June 20, 1939.



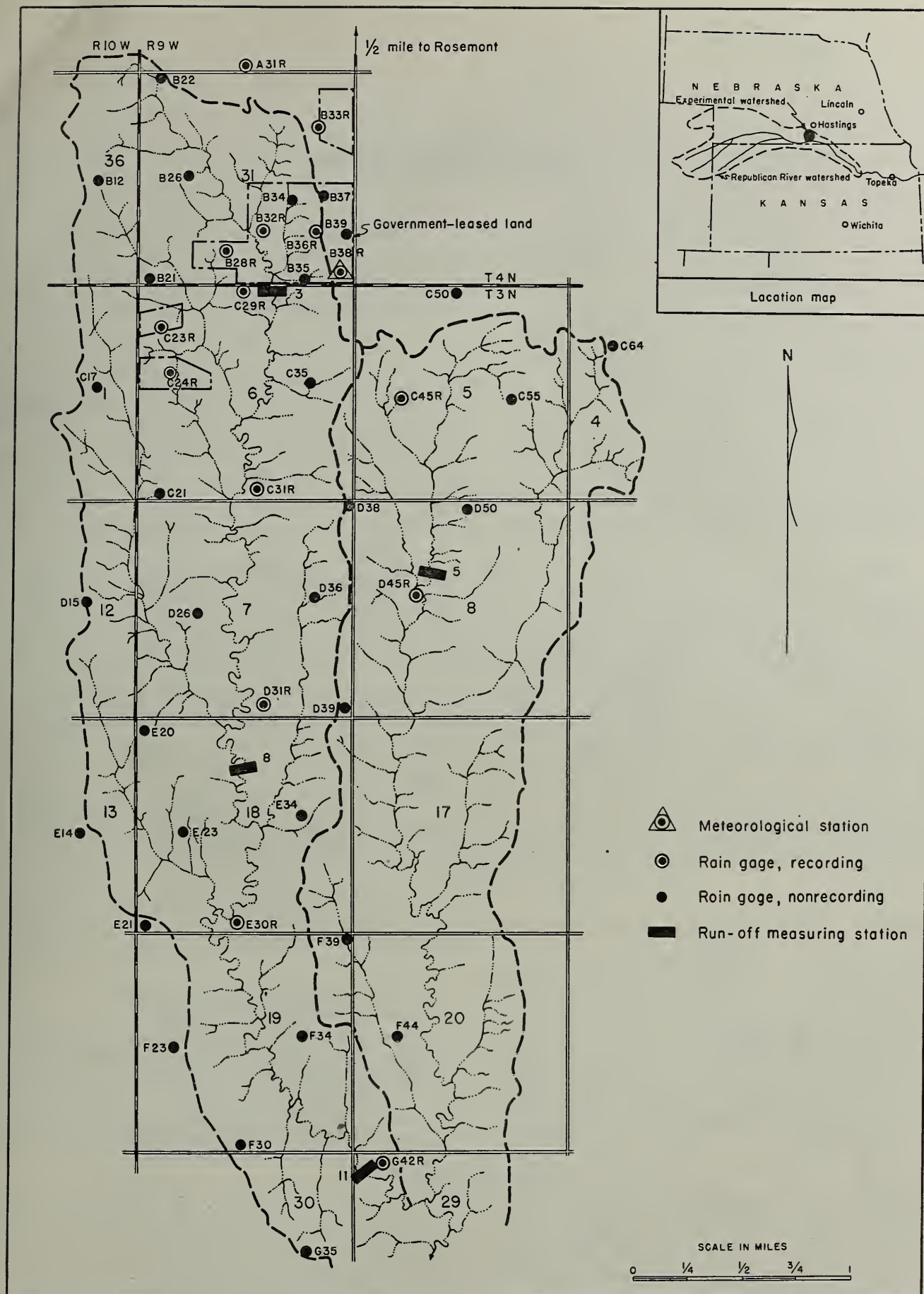


FIGURE 1.—Location of watersheds and rain gages in Beaver Creek drainage basin. (Gage C29R discontinued April 29, 1939.)



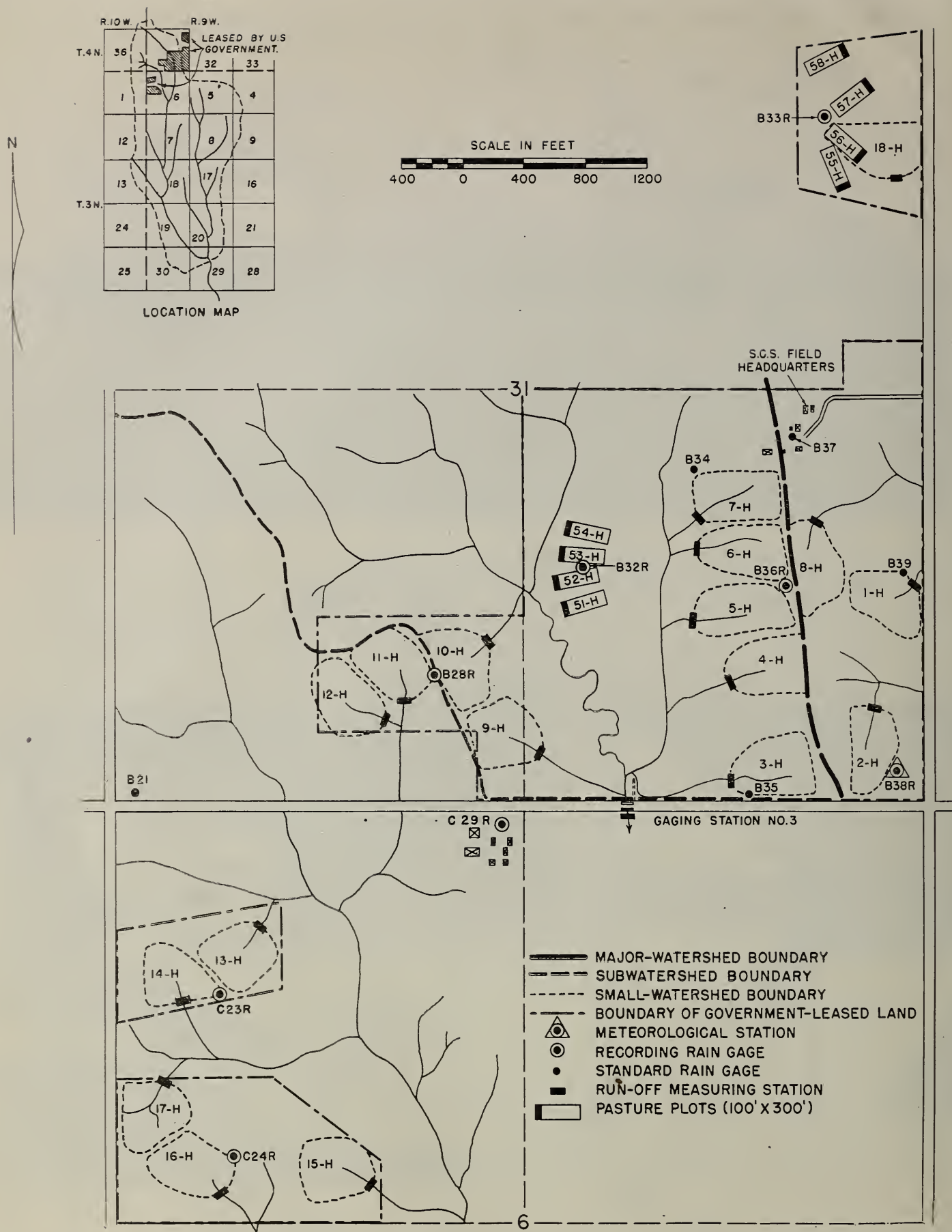


FIGURE 2.—Location of watersheds and instrumentation on Government land. (Gage C29R discontinued April 29, 1939.)



constructed in the field and installed with all conditions as nearly identical as possible with those under which they were rated.

For watersheds larger than 200 acres in area a broad-crested V-notch control weir with 1-on-3 side slopes is used to control the stage-discharge for low flows, and the stabilized channel banks serve as control for medium and high flows (pl. 2). Each of these stations is rated by current-meter measurements made in accordance with United States Geological Survey methods.

FW-1 water-stage recorders operating on chart scales of 1 inch equals 25 minutes and 1 inch equals 0.20-foot stage are used at all run-off measuring stations.

#### METHODS OF COMPUTATION

The records of stage are first corrected for errors in gage height and time due to ordinary errors such as datum shifts, intake stoppage, paper expansion and contraction, improper settings, and instrument irregularities, all of which, except datum shifts, are noted at each station by routine inspections. Annually or oftener elevations of flumes, weirs, and recorders are checked by levels.

The corrected gage heights are transferred from the recorder charts to computation sheets on which are tabulated the time and stage for (1) each clock 5-, 10-, or 15-minute period, (2) each change in the direction of the stage graph, and (3) each additional point necessary to define the hydrograph and to compute the run-off amounts within allowable limits of error. Discharge tables derived either from the laboratory calibrations or from current-meter measurements give the discharge in second-feet and inches per hour for each tabulated stage. The discharge for each tabulated time is averaged with that for the preceding time, and this average discharge for the time interval is converted to the amount of run-off in inches for the interval. The run-off amounts for each time interval are then accumulated, giving the mass run-off that has passed the station up to any time.

#### ACCURACY OF RECORDS

The records from the H measuring flumes are of a high degree of accuracy. The pondage above some of the flumes was rather large and when the hydrographs were corrected for pondage the peaks were higher and occurred before the time indicated by the graph of

flow from the flume. An accurate topographic map was made above each flume and the records were corrected for pondage on watersheds 1-H to 18-H. In the fall of 1939 and the early spring of 1940 flume-inlet boxes were installed on 16 of the 18 flumes, which will greatly reduce the pondage correction. The pondage on the 2 remaining flumes is insufficient to warrant the installation of the flume-inlet boxes. The accuracy of records from each current-meter station is described in connection with the detailed run-off records from that station.

#### SOIL MOISTURE

The soil moisture (percent of dry-soil weight) is measured at the small, cultivated watersheds 3-H to 17-H at the time of planting and again at the time of harvest. On meadow watersheds 1-H and 2-H and on pasture watershed 18-H, soil-moisture samples are taken in the spring and again in the fall. On pasture plots 51-H to 58-H samples are taken in the early spring and late fall. Samples are taken with sampling tubes at sites selected to represent the watershed adequately.

#### COVER AND CULTIVATION

A survey of the conditions of the soil and vegetal cover over the whole project is made semimonthly. A record of cultural operations is kept for each small watershed, and an inspection is made of these watersheds following each storm period. The date of important changes in cover and the dates of any cultural operations that might influence hydrologic conditions are listed with the tables of run-off.

The maps presented in figures 3 to 5 show the distribution of cover by watersheds in the Beaver Creek Basin and the land use and crops on the small watersheds on Government land.

#### OTHER METEOROLOGICAL RECORDS

Records of temperature, humidity, evaporation, barometric pressure, wind movement, and sunshine duration are obtained at the central meteorological station (pl. 1, A). Records of relative humidity and dew point are obtained from a sling psychrometer. Evaporation is measured in a United States Weather Bureau class A pan, a Colorado pan, and a Bureau of Plant Industry pan.

#### GRAPHIC DATA

The areal distribution of rainfall for the two storms on June 20, 1939, and for those on May 17 and June 8, 1940, is shown by isohyetal lines in figures 6 to 9.

Rainfall and run-off from one single-crop and one mixed-crop watershed are shown for the storms of June 20, 1939, and May 17, 1940, in figures 10 to 13.



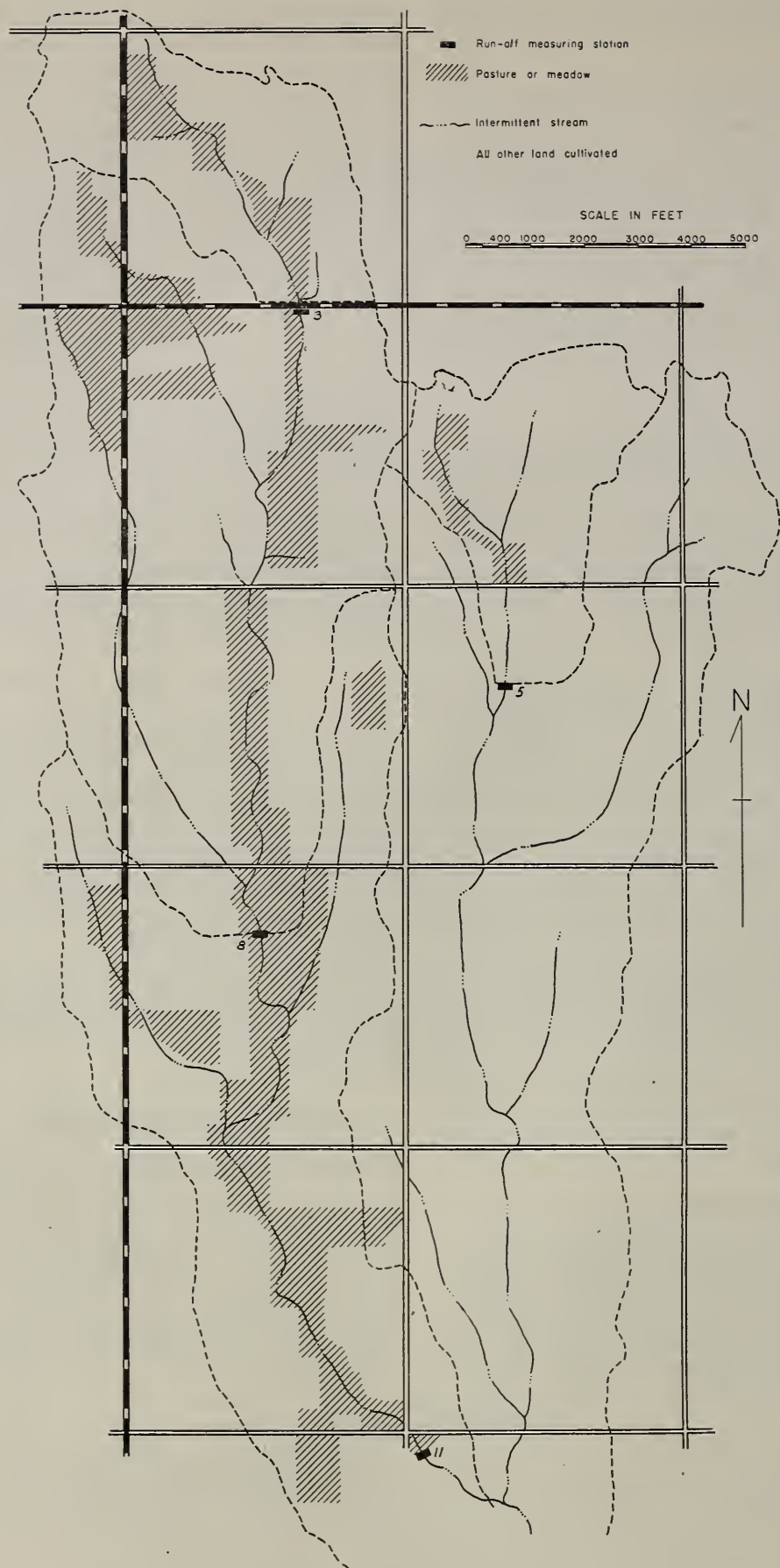


FIGURE 3.—Land use and watersheds in Beaver Creek drainage basin, 1939-40.







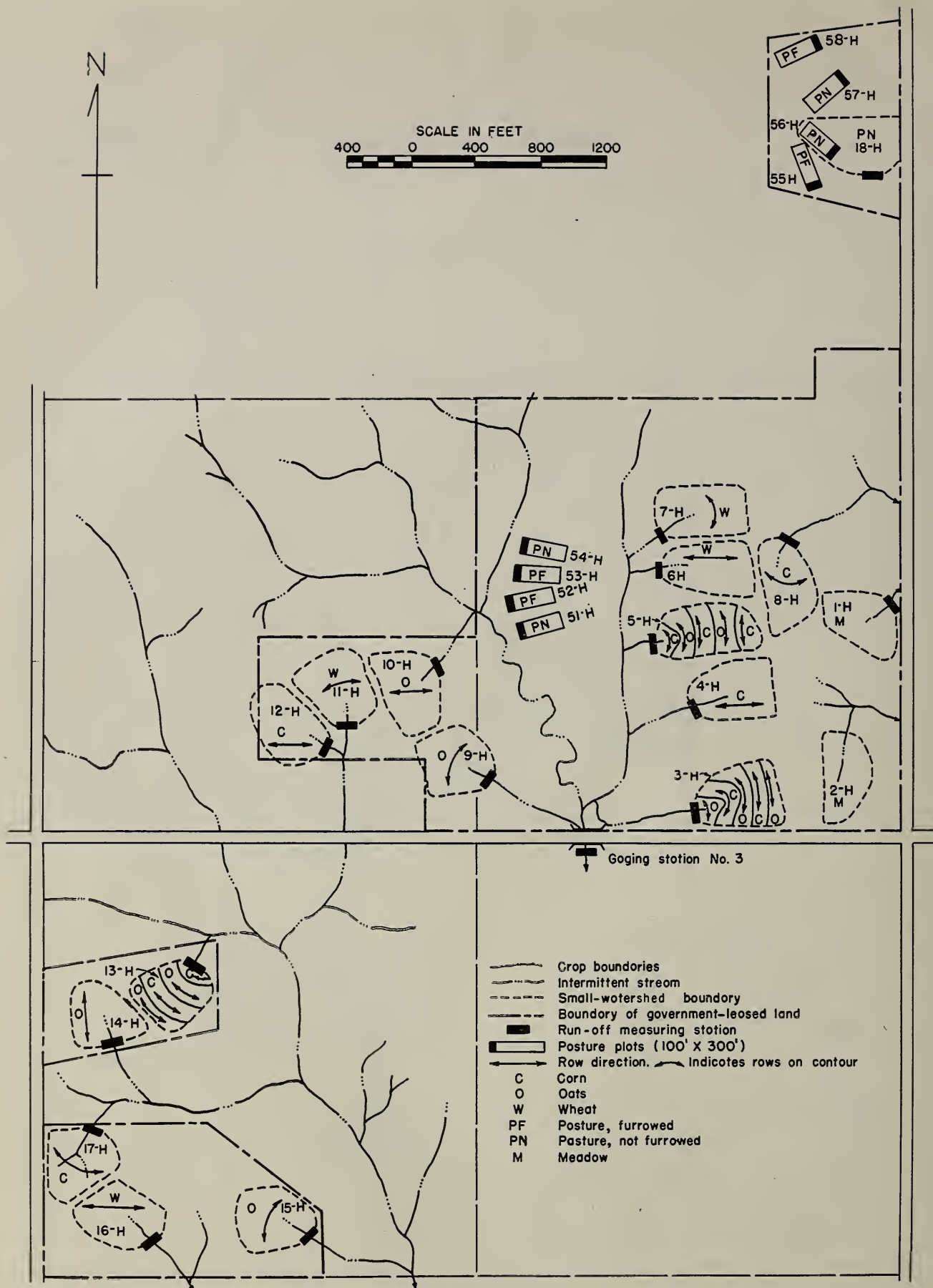


FIGURE 5.—Land use and watersheds on Government land, 1940.



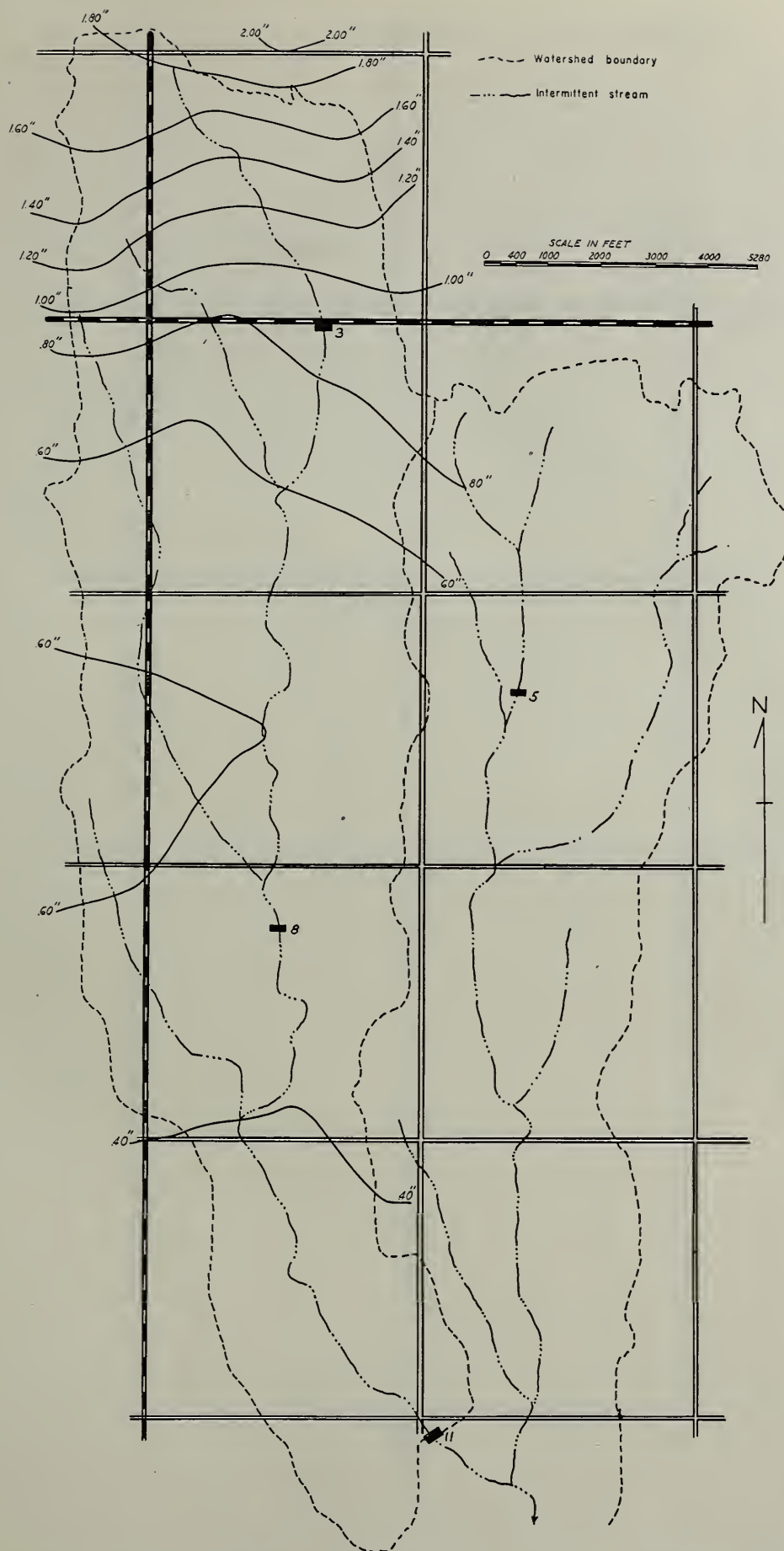


FIGURE 6.—Isohyetal map of the 1 p. m. storm of June 20, 1939, on Beaver Creek drainage basin



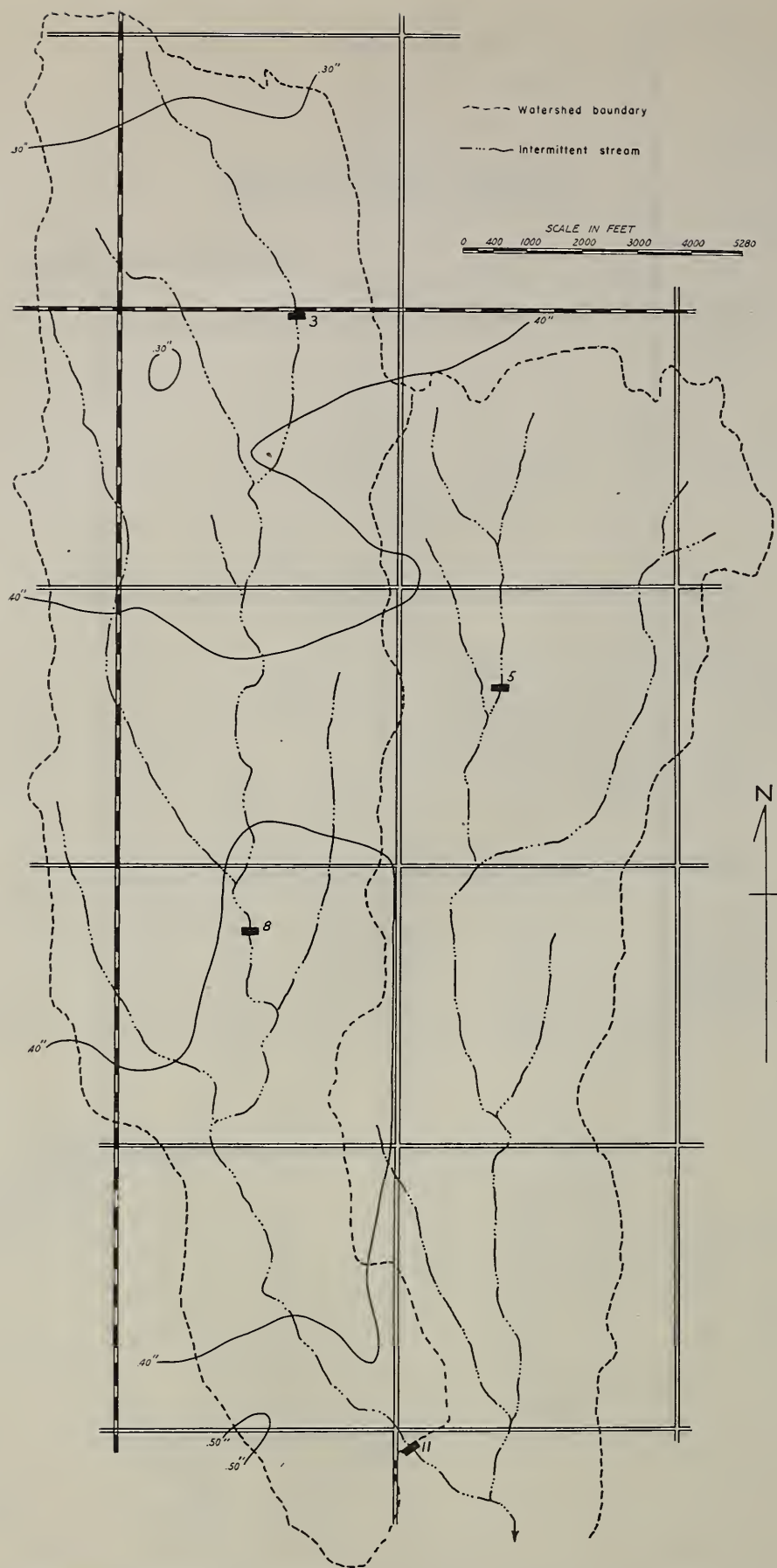


FIGURE 7.—Isohyetal map of the 4 p. m. storm of June 20, 1939, on Beaver Creek drainage basin.



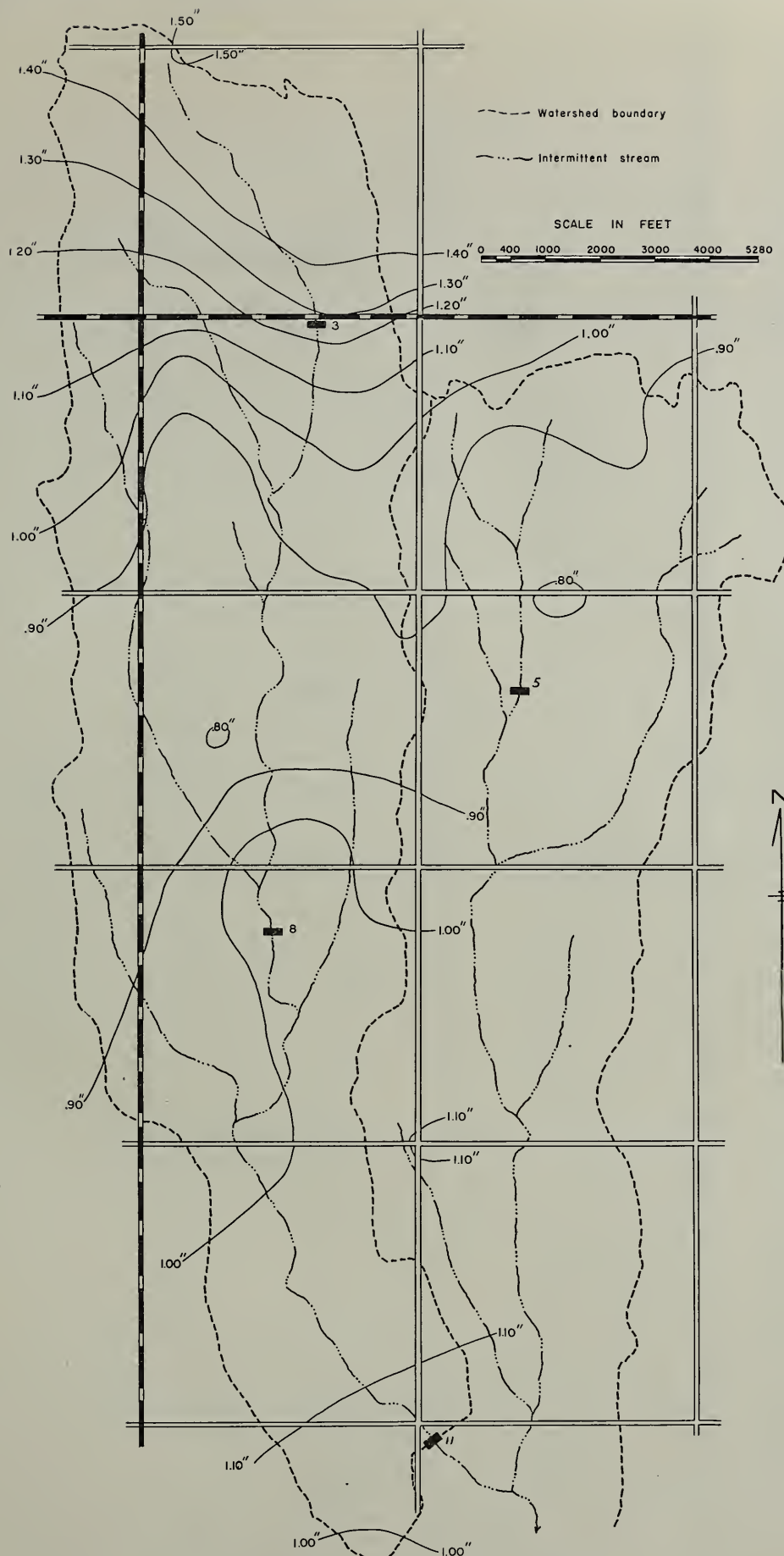


FIGURE 8.—Isohyetal map of the storm of May 17, 1940, on Beaver Creek drainage basin.







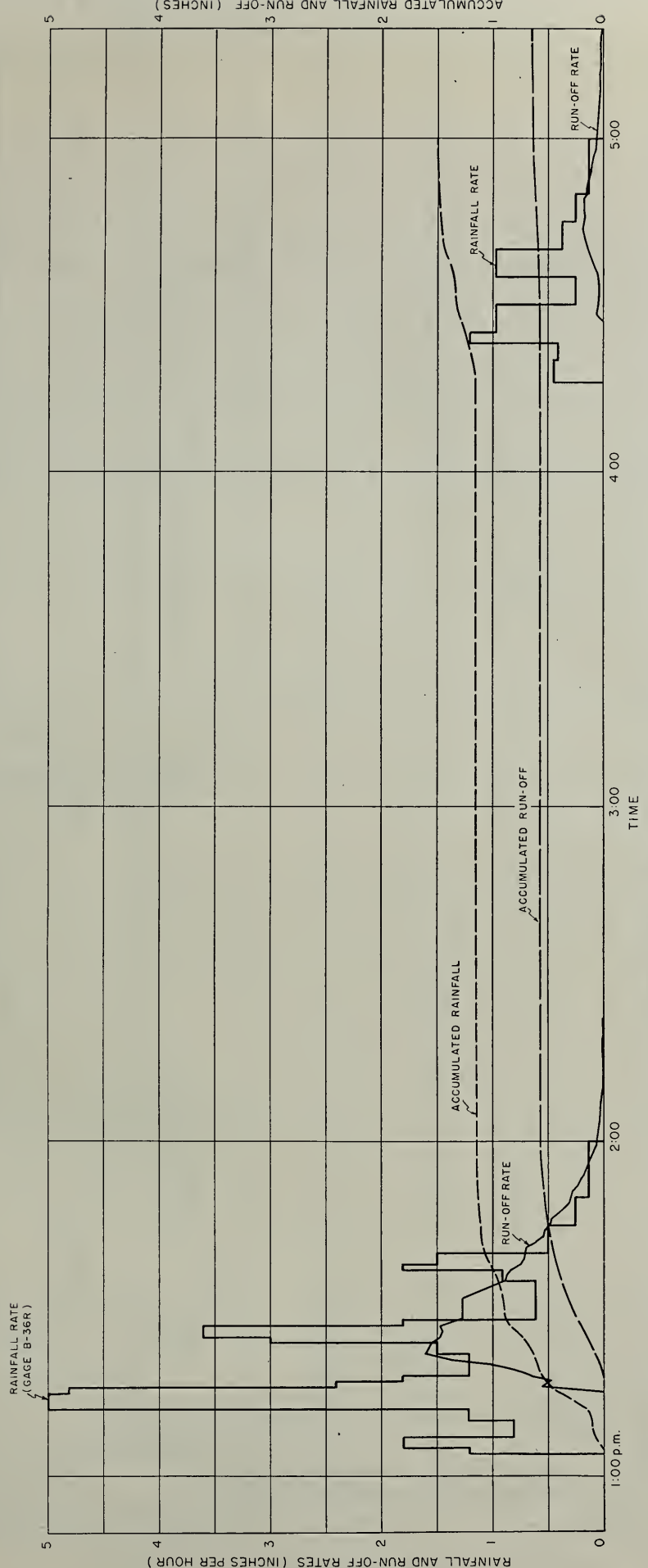


FIGURE 10.—Rainfall and run-off for watershed 7-H, June 20, 1939. Area, 4.15 acres, average slope, 4.6 percent; oats and wheat 10 inches high.



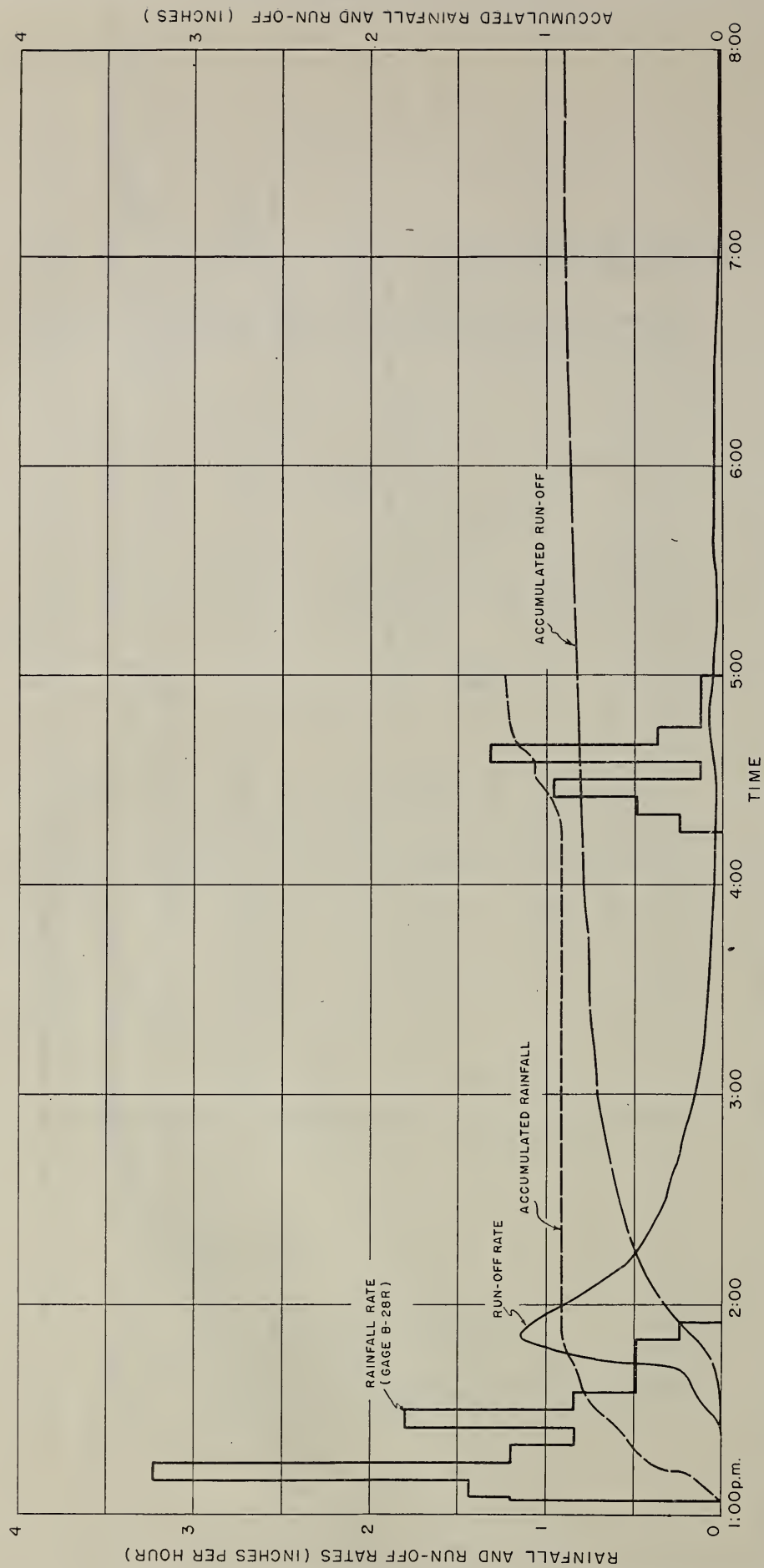


FIGURE 11.—Rainfall and run-off for drainage area above gaging station 3, June 20, 1939. Area, 481 acres; average slope, 5.4 percent; 17 percent of area in pasture and meadow and 80 percent cultivated; corn 10 inches high; small grain 12 inches high.





FIGURE 12.—Rainfall and run-off for watershed 7-H, May 17, 1940. Area, 4.15 acres; average slope, 4.6 percent; wheat, planted on the contour, about 8 inches high.



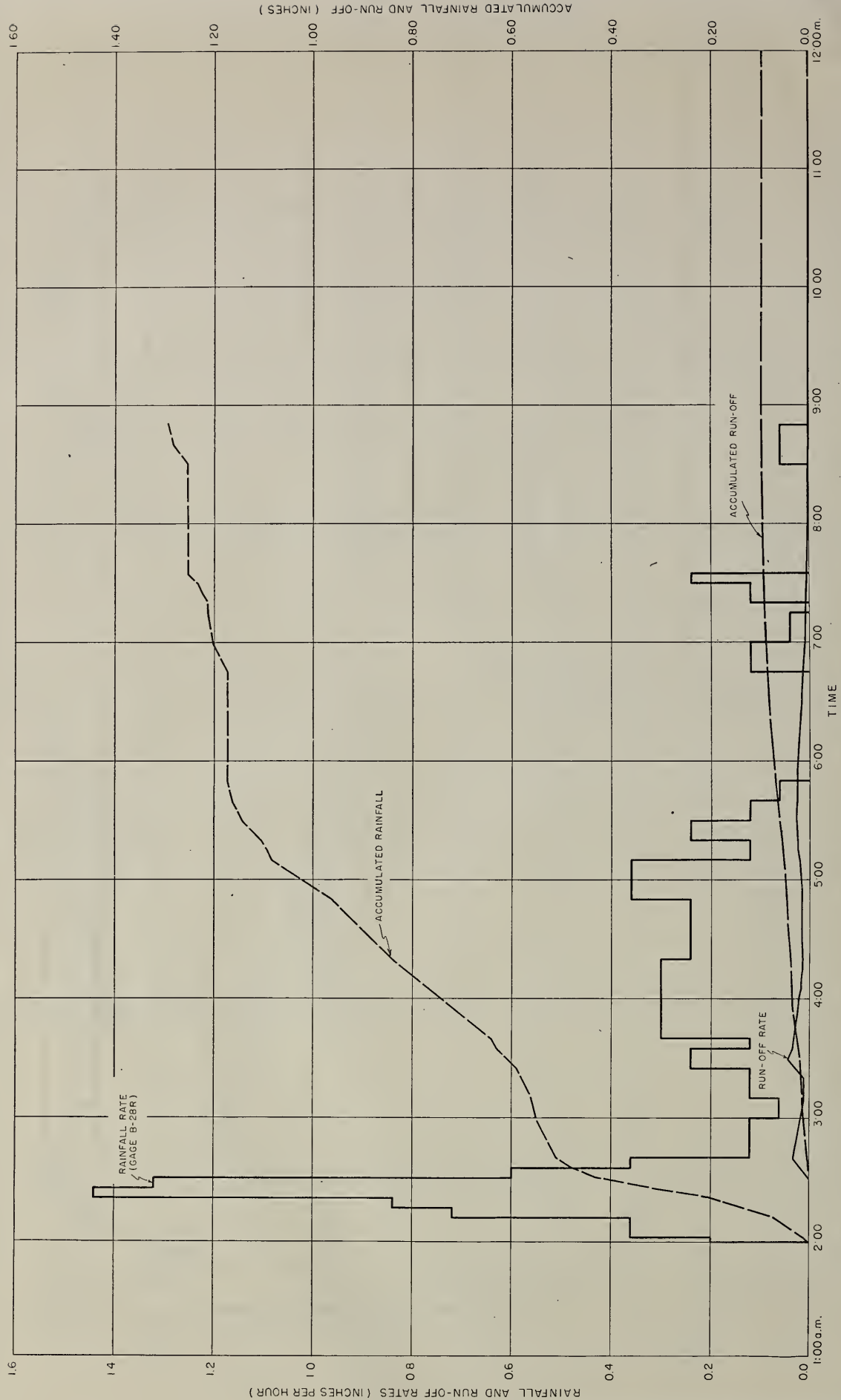


FIGURE 13.—Rainfall and run-off for drainage area above gaging station 3, May 17, 1940. Area, 481 acres; average slope, 5.4 percent; 17 percent of area in pasture and meadow and 80 percent cultivated; corn being planted; small grain 6 inches high.



# TABULAR DATA

## EXPLANATION OF TABLES

To obviate repeating footnotes numerous times, any needed explanatory material for series of similar tables is given here. Such material for single table appears in footnotes.

### TABLES 24 TO 53. RUN-OFF FROM WATERSHEDS

In the note at the head of each table the location, physical characteristics, land use, rainfall and run-off measurements, and a summary of the available records are given. The data on erosion and soil are from the conservation survey of the entire experimental water-

TABLE 1.—*Monthly and annual meteorological data at the central meteorological station, 1939-40*

Month	Temperature <sup>1</sup>			Total precipitation <sup>2</sup>	Average relative humidity at 8 a. m.	Average wind velocity 10 feet above ground	Sunshine duration
	Maximum	Minimum	Mean				
<i>1939</i>	<i>°F.</i>	<i>°F.</i>	<i>°F.</i>	<i>Inches</i>	<i>Per-cent</i>	<i>Miles per hour</i>	<i>Percent of possible</i>
May.....	94	38	67	1.79	63	10.7	-----
June.....	100	46	71	4.40	70	10.9	-----
July.....	112	59	81	1.22	58	9.2	83
August.....	99	49	74	2.57	69	9.2	78
September.....	106	32	72	.04	49	11.5	92
October.....	87	24	55	.37	57	10.3	<sup>3</sup> 84
November.....	69	14	41	0	62	8.4	<sup>4</sup> 85
December.....	76	-8	34	.24	64	9.7	70
May to December, 1939.....	112	-8	62	10.63	62	10.0	82
<i>1940</i>							
January.....	48	-20	8	.25	71	10.4	65
February.....	60	-3	24	.28	84	11.8	77
March.....	83	8	38	.61	80	12.6	81
April.....	88	14	49	1.15	71	14.0	72
May.....	95	34	60	2.23	65	10.6	85
June.....	101	48	72	1.43	63	11.3	81
July.....	114	52	80	.32	57	11.1	93
August.....	99	49	73	1.36	71	8.6	86
September.....	100	34	69	1.42	67	10.7	85
October.....	86	31	60	1.04	70	10.3	87
November.....	73	-5	33	1.63	84	9.2	66
December.....	58	0	29	.47	87	9.1	62
Year.....	114	-20	50	12.19	72	10.8	78
Mean at Hastings, 1895-1940.....			50.6	24.54	-----	-----	-----

<sup>1</sup> Maximum and minimum are the extremes observed and the mean is the average of the mean for each day, which is the arithmetic average of the maximum and minimum for each day.

<sup>2</sup> Precipitation is measured with an unshielded recording rain gage.

<sup>3</sup> Average of 18 days of data taken from chart of sunshine-duration recorder and 13 days of data obtained by observation.

<sup>4</sup> Average of 18 days of data taken from chart of sunshine-duration recorder and 12 days of data obtained by observation.

shed. The gages from which the amount of rainfall is computed are listed under precipitation. The amount recorded for watersheds of 10 acres or smaller is that measured at one centrally located gage. That for watersheds above 10 acres in area is the Thiessen average of the amounts observed at all the gages listed. The duration of rainfall and the maximum rates are determined from a selected recording gage.

These tables give for each watershed the run-off rates and amounts for all storms in sufficient detail to reproduce accurately the hydrograph and mass curve.

TABLE 2.—*Monthly evaporation, wind movement, and relative humidity at the central meteorological station, 1939-40*

Month	Evaporation						Average wind velocity 20 inches above ground	Average relative humidity at 8 a.m.
	Weather Bureau class A pan <sup>1</sup>		Colorado type pan <sup>2</sup>		Bureau of Plant Industry pan <sup>3</sup>			
	Water temperature at 8 a. m.	Evaporation	Water temperature at 8 a. m.	Evaporation	Water temperature at 8 a. m.	Evaporation		
<i>1939</i>	<i>° F.</i>	<i>Inches</i>	<i>° F.</i>	<i>Inches</i>	<i>° F.</i>	<i>Inches</i>	<i>Miles per hour</i>	<i>Per-cent</i>
April.....	<sup>4</sup> 47	<sup>4</sup> 5. 69	<sup>5</sup> 54	<sup>5</sup> 2. 83	<sup>4</sup> 50	<sup>4</sup> 3. 42	<sup>4</sup> 10. 9	<sup>6</sup> 72
May.....	58	12. 98	63	9. 49	63	8. 87	7. 5	63
June.....	66	14. 28	70	10. 53	69	9. 87	8. 2	70
July.....	71	17. 12	74	12. 68	74	11. 97	6. 8	58
August.....	66	12. 57	70	9. 26	70	8. 57	6. 8	69
September.....	58	15. 50	64	12. 41	62	10. 99	9. 1	49
October.....	45	8. 77	51	7. 43	49	6. 13	8. 1	57
May to October, 1939.....	61	81. 22	65	61. 80	64	56. 40	7. 8	61
<i>1940</i>								
April.....	43	7. 58	48	5. 82	47	5. 27	10. 5	71
May.....	54	11. 02	58	7. 81	58	7. 61	7. 9	65
June.....	65	14. 64	69	10. 23	68	9. 82	8. 0	63
July.....	70	19. 07	74	13. 85	73	13. 04	8. 4	57
August.....	66	12. 48	71	10. 38	71	9. 30	6. 8	71
September.....	60	11. 89	65	10. 06	64	7. 93	8. 4	67
October.....	49	8. 15	56	6. 49	54	5. 30	7. 9	70
April to October, 1940.....	58	84. 83	63	64. 64	62	58. 27	8. 3	66

<sup>1</sup> U. S. Weather Bureau type pan, diameter 4 feet and depth 10 inches, water level 2 inches below top of pan which is about 15 inches above ground surface.

<sup>2</sup> Colorado type pan, 3 feet deep and 3 feet square; water level at ground surface 4 inches below top of pan.

<sup>3</sup> Bureau of Plant Industry type pan, diameter 6 feet and depth 2 feet; water level at ground surface 4 inches below top of pan.

<sup>4</sup> Record started Apr. 13.

<sup>5</sup> Record started Apr. 20.

<sup>6</sup> Record started Apr. 11.



TABLE 3.—Daily maximum, minimum, and average <sup>1</sup> temperature at the central meteorological station, 1939

Day	May			June			July			August			September			October			November			December		
	Maximum	Minimum	Average	Maximum	Minimum	Average	Maximum	Minimum	Average	Maximum	Minimum	Average	Maximum	Minimum	Average	Maximum	Minimum	Average	Maximum	Minimum	Average	Maximum	Minimum	Average
1	83	51	67	86	62	74	82	63	72	91	68	80	92	64	78	77	43	60	46	31	38	56	26	41
2	82	50	66	74	61	67	87	61	74	88	66	77	105	71	88	80	51	66	34	14	24	48	27	38
3	83	48	66	74	47	60	91	66	78	98	62	80	98	71	84	85	56	70	42	14	28	60	28	44
4	82	49	66	86	58	72	99	66	82	93	60	76	90	56	73	86	58	72	54	17	36	61	32	46
5	81	54	68	89	58	74	98	68	83	95	67	81	102	64	83	81	39	60	58	28	43	69	34	52
6	85	58	72	100	65	82	104	72	88	97	69	83	106	72	89	87	50	68	64	31	48	76	34	55
7	72	45	58	83	68	75	90	68	79	76	66	71	100	74	87	70	48	59	66	35	50	53	34	44
8	68	49	58	89	59	74	91	63	77	76	51	64	84	53	68	65	51	58	59	24	42	60	26	43
9	86	38	62	83	54	68	97	63	80	81	54	68	89	55	72	63	50	56	65	34	50	70	28	49
10	68	52	60	70	52	61	100	60	80	80	66	73	86	50	68	71	33	52	56	27	42	60	35	48
11	65	43	54	68	46	57	108	68	88	84	58	71	99	60	80	67	42	54	69	27	48	68	32	50
12	62	47	54	69	50	60	112	74	93	89	61	75	95	73	84	68	34	51	58	24	41	54	34	44
13	72	40	56	74	54	64	103	77	90	94	61	78	97	74	86	54	41	48	69	28	48	58	18	38
14	81	44	62	87	56	72	106	68	87	83	66	74	98	73	86	58	29	44	68	30	49	49	21	35
15	78	42	60	86	60	73	105	74	90	76	63	70	97	71	84	79	35	57	67	26	46	61	24	42
16	89	50	70	94	64	79	102	76	89	81	64	72	79	56	68	52	37	44	68	32	50	65	28	46
17	86	57	72	96	69	82	92	65	78	85	60	72	83	58	70	58	27	42	67	36	52	71	33	52
18	81	56	68	85	65	75	88	68	78	85	60	72	85	51	68	80	33	56	58	28	43	53	35	44
19	84	52	68	85	59	72	95	59	77	84	60	72	96	52	74	75	42	58	55	25	40	45	27	36
20	75	56	66	84	59	72	103	67	85	74	53	64	78	54	66	73	44	58	57	25	41	43	16	30
21	83	52	68	79	52	66	91	69	80	85	49	67	85	49	67	79	46	62	54	30	42	34	9	22
22	83	57	70	80	57	68	73	63	68	79	59	69	90	49	70	76	42	59	60	28	44	37	10	24
23	87	63	75	89	58	74	92	60	76	92	49	70	70	60	65	81	46	58	58	29	44	28	13	20
24	94	66	80	86	63	74	94	67	80	92	55	74	86	43	64	78	36	57	39	27	33	27	20	24
25	88	62	75	84	60	72	94	62	78	87	59	73	57	45	51	68	40	54	36	29	32	24	22	23
26	77	61	69	88	65	76	99	68	84	89	64	76	63	33	48	72	39	56	41	29	35	24	19	22
27	71	57	64	87	67	77	101	68	84	90	66	78	80	36	58	51	37	44	45	28	36	14	6	10
28	80	53	66	87	62	74	89	65	77	89	66	78	93	53	73	70	24	47	51	24	38	10	—	3
29	89	54	72	86	62	74	90	60	75	99	66	82	54	34	44	54	32	43	55	24	40	22	—	7
30	94	58	76	87	58	72	97	60	78	97	66	82	68	32	50	50	25	38	45	28	36	29	—	12
31	89	62	76	—	—	—	94	68	81	90	67	78	—	—	—	62	29	46	—	—	—	31	10	20
Monthly average	81	52	67	84	59	71	96	66	81	87	61	74	87	56	72	70	40	55	55	27	41	47	21	34

<sup>1</sup> The daily average is the arithmetic mean of the daily maximum and minimum temperature obtained from the maximum and minimum thermometers.TABLE 4.—Daily maximum, minimum, and average <sup>1</sup> temperature at the central meteorological station, 1940

Day	January			February			March			April			May			June		
	Maximum	Minimum	Average	Maximum	Minimum	Average	Maximum	Minimum	Average	Maximum	Minimum	Average	Maximum	Minimum	Average	Maximum	Minimum	Average
1	6	5	6	33	23	28	37	32	34	86	41	64	65	34	50	90	58	74
2	14	—6	4	22	11	16	32	28	30	75	47	61	77	35	56	90	61	76
3	12	2	7	30	11	20	48	26	37	64	39	52	73	43	58	92	62	77
4	12	10	11	28	13	20	50	26	38	55	30	42	79	44	62	89	62	76
5	5	—15	—5	32	14	23	58	28	43	52	28	40	81	53	67	88	58	73
6	8	—5	2	33	21	27	36	30	33	49	29	39	67	47	57	78	58	68
7	11	—3	4	26	17	22	45	29	37	42	30	36	66	49	58	73	54	64
8	10	—16	—3	18	15	16	46	26	36	50	31	40	73	48	60	88	49	68
9	17	—4	6	25	—3	11	52	30	41	67	34	50	77	41	59	75	56	66
10	48	5	26	38	0	19	32	26	29	49	42	46	75	49	62	62	50	56
11	43	9	26	38	21	30	28	25	26	30	19	24	79	48	64	69	50	60
12	20	—1	10	28	23	26	24	21	22	51	14	32	91	51	71	78	49	64
13	18	2	10	33	19	26	23	10	16	71	25	48	95	56	76	79	56	68
14	25	3	14	38	18	28	37	8	22	88	43	66	54	45	50	85	54	70
15	24	7	16	39	16	28	60	12	36	74	51	62	65	34	50	89	58	74
16	35	8	22	31	19	25	70	30	50	56	42	49	75	41	58	90	62	76
17	6	4	5	29	21	25	70	34	52	47	32	40	60	48	54	95	64	80
18	6	—20	—7	32	21	26	59	29	44	60	30	45	64	49	56	101	64	82
19	15	—19	—2	30	22	26	60	34	47	70	36	53	75	44	60	89	64	76
20	10	—6	2	29	17	23	43	31	37	74	42	58	81	51	66	82	60	71
21	14	—6	4	34	14	24	46	30	38	75	48	62	68	51	60	97	61	79
22	14	—8	3	35	8	22	54	27	40	58	44	51	71	44	58	100	70	85
23	10	—3	4	36	13	24	27	15	21	54	39	46	73	50	62	72	65	68
24	—1	—8	—4	17	4	10	38	16	27	59	34	46	70	49	60	83	48	66
25	6	—17	—6	35	6	20	46	18	32	55	40	48	61	38	50	94	53	74
26	11	—16	—2	37	11	24	60	26	43	51	40	46	68	38	53	96	60	78
27	21	—11	5	43	21	32	64	26	45	70	40	55	75	44	60	99	64	82
28	37	2	20	34	23	28	70	29	50	65	47	56	74	43	58	83	62	72
29	34	18	26	60	28	44	68	32	50	72	46	59	80	47	64	89	50	70
30	32	10	21	—	—	—	78	36	57	54	41	48	82	54	68	100	66	83
31	41	10	26	—	—	—	83	43	63	—	—	—	82	52	67	—	—	—
Monthly average	18	—2	8	33	15	24	50	26	38	61	37	49	73	46	60	86	58	72

See footnotes at end of table.



TABLE 4.—Daily maximum, minimum, and average<sup>1</sup> temperature at the central meteorological station, 1940—Continued

Day	July			August			September			October			November			December		
	Maximum	Minimum	Average	Maximum	Minimum	Average	Maximum	Minimum	Average	Maximum	Minimum	Average	Maximum	Minimum	Average	Maximum	Minimum	Average
	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.
1.....	87	65	76	98	72	85	92	60	76	60	52	56	66	36	51	39	18	28
2.....	74	59	66	97	66	82	93	60	76	70	50	60	69	36	53	26	21	24
3.....	80	54	67	93	67	80	92	62	72	74	51	62	73	42	57	40	10	25
4.....	82	52	67	98	67	82	75	65	70	77	53	65	50	44	47	48	12	30
5.....	85	54	70	74	63	68	82	63	72	85	48	66	44	30	37	56	27	42
6.....	90	61	76	83	52	68	89	63	76	65	49	57	51	23	37	56	29	42
7.....	94	65	80	88	60	74	100	65	82	71	37	54	55	26	40	51	28	40
8.....	96	66	81	77	63	70	99	64	82	74	38	56	64	34	49	58	29	44
9.....	94	63	78	83	57	70	80	62	71	80	46	63	52	43	48	58	30	44
10.....	98	70	84	86	60	73	66	42	54	74	48	61	39	35	37	40	31	36
11.....	90	75	82	82	60	71	72	34	53	78	48	63	15	6	10	31	26	28
12.....	78	57	68	81	65	73	85	43	64	85	44	64	16	4	10	26	24	25
13.....	86	54	70	91	63	77	91	50	66	83	44	64	24	—1	12	9	0	4
14.....	96	62	79	93	63	78	85	58	72	55	45	50	16	—5	6	16	1	8
15.....	89	70	80	90	65	78	81	52	66	63	31	47	35	—4	16	19	8	14
16.....	91	66	78	84	64	74	87	56	72	77	36	56	50	4	27	23	6	14
17.....	100	72	86	85	66	76	97	62	80	68	41	54	50	28	39	27	6	16
18.....	100	74	87	78	54	66	97	66	82	85	40	62	56	32	44	31	10	20
19.....	103	78	90	79	49	64	93	66	80	80	49	64	39	33	36	37	18	28
20.....	86	69	78	81	56	68	93	65	79	86	47	66	32	28	30	43	29	36
21.....	95	66	80	91	59	75	92	63	78	86	48	67	40	24	32	27	21	24
22.....	99	68	84	84	59	72	79	63	71	83	52	68	35	27	31	38	21	30
23.....	103	68	86	88	62	75	78	59	68	72	46	59	35	26	30	41	23	32
24.....	108	72	90	95	66	80	68	54	61	81	39	60	40	23	32	44	28	36
25.....	114	76	95	99	70	84	58	38	48	85	46	66	31	24	28	40	29	34
26.....	91	68	80	82	63	72	65	42	54	80	50	65	35	25	30	34	28	31
27.....	95	66	80	76	58	67	72	44	58	76	56	66	31	18	24	45	27	36
28.....	107	70	88	86	55	70	78	45	62	60	52	56	48	17	32	47	28	38
29.....	100	70	85	77	59	68	77	49	63	63	36	50	47	28	38	36	28	32
30.....	101	71	86	86	55	70	73	54	64	71	40	56	45	30	38	37	26	32
31.....	105	74	90	88	49	68				59	40	50			40	27	34	
Monthly average.....	94	66	80	86	61	73	83	56	69	74	45	60	43	24	33	38	21	29

<sup>1</sup> The daily average shown is the arithmetical mean of the daily maximum and minimum temperatures obtained from the maximum and minimum thermometers.

TABLE 5.—Daily (midnight to midnight) precipitation at recording stations, 1938

Date	Recording gage						Date	Recording gage					
	A31R	C29R	C31R	D31R	E30R	G42R		A31R	C29R	C31R	D31R	E30R	G42R
May:	Inches	Inches	Inches	Inches	Inches	Inches	August:	Inches	Inches	Inches	Inches	Inches	Inches
4.....	(1)	(1)	(1)	2 1.13	(1)	(1)	4.....	0.05	0.02	0.03	0.03	0	0
7.....	(1)	(1)	(1)	2 1.12	(1)	(1)	7.....	.11	.34	.30	.30	.26	.09
8.....	(1)	(1)	(1)	2.03	(1)	(1)	8.....	.12	.01	.09	.10	.09	.09
11.....	(1)	(1)	(1)	2.10	(1)	(1)	14.....	.06	.13	.10	.17	.12	.21
12.....	(1)	(1)	(1)	2.33	(1)	(1)	15.....	.10	.13	.15	.22	.25	.59
17.....	(1)	2 0.09	(1)	2.03	(1)	(1)	16.....	1.27	1.01	1.00	.97	.86	.99
18.....	(1)	2.92	(1)	2.72	2 0.55	(1)	17.....	.13	.02	.02	.02	.16	.16
20.....	(1)	2.96	(1)	2.56	2.29	(1)	27.....	.13	.15	.13	.08	.22	.36
21.....	(1)	2.14	(1)	2.15	2.11	(1)	30.....	0	0	0	.04	0	.01
27.....	(1)	2.18	(1)	2.30	2.38	(1)	31.....	.08	.09	.08	.07	.04	.06
29.....	(1)	2.06	(1)	2.28	2.40	(1)	Total.....	1.92	1.88	1.90	1.98	1.86	2.56
31.....	(1)	2 1.18	(1)	2 1.15	2 1.10	(1)	September:						
Total.....				5.90			1.....	0	0	.01	.05	.11	.12
June:							2.....	.66	.68	.74	.80	.82	1.06
1.....	(1)	2.05	(1)	2.05	2.05	(1)	3.....	.10	.21	.27	.14	.09	0
10.....	(1)	.32	(1)	2.32	2.36	(1)	10.....	.16	.15	.19	.18	.18	.22
13.....	(1)	.53	(1)	2.58	2.53	(1)	11.....	0	0	.03	.08	0	0
14.....	(1)	1.33	(1)	2.58	2.53	(1)	12.....	.42	.39	.17	.14	.08	.02
15.....	(1)	0	(1)	2.58	2 0	(1)	13.....	.72	.39	.28	.28	.32	.23
16.....	(1)	.31	(1)	2.31	2.27	(1)	Total.....	2.06	1.82	1.69	1.67	1.60	1.65
21.....	(1)	.04	(1)	0	.22	(1)	October:						
25.....	(1)	.33	0.36	.38	.48	(1)	8.....	0	.04	.06	.04	.04	.01
30.....	0.39	.92	.92	.62	.31	0.19	9.....	.02	0	0	.01	.04	.01
Total.....		3.83		2.84	2.22		28.....	.03	.03	.04	.07	.10	.07
July:							29.....	.03	.04	.08	.08	.10	.13
1.....	0.17	0.17	0.28	0.83	1.05	1.05	Total.....	.08	.11	.18	.20	.28	.22
2.....	0	0	0	0	.08	0	November:						
6.....	.26	.46	.27	.17	.18	.24	2.....	.02	.02	.07	.13	.12	.14
16.....	.19	.21	.21	.20	.19	.18	4.....	.20	.20	.23	.21	.27	.26
25.....	.54	.33	.38	.49	.24	.01	6.....	.02	.01	0	.02	0	0
26.....	.65	.61	1.07	.79	.79	.72	Total.....	.24	.23	.30	.36	.39	.40
27.....	.04	.08	0	.22	.05	.25	December.....	0	0	0	0	0	0
28.....	0	.05	.18	.07	.01	.14							
29.....	.07	.06	.08	.09	.08	.09							
Total.....	1.92	1.97	2.47	2.86	2.62	2.68							

<sup>1</sup> No record.<sup>2</sup> 8 a. m. reading.<sup>3</sup> Snow measured in recording rain and snow gage.



TABLE 6.—Daily (midnight to midnight) precipitation at recording stations, 1939

Date	Recording gage													
	A31R	B28R <sup>1</sup>	B32R	B33R	B36R	B38R	C23R	C24R	C31R	C45R	D31R	D45R	E30R	G42R
January:	Inches	Inches	Inches	Inches	Inches	Inches	Inches	Inches	Inches	Inches	Inches	Inches	Inches	Inches
8.....	2 0.06	2 0.08	(3)	(3)	(3)	(3)	(3)	(3)	2 0.08	(3)	2 0.07	(3)	2 0.05	2 0.06
9.....	2.09	2.06	(3)	(3)	(3)	(3)	(3)	(3)	2.05	(3)	2.06	(3)	2.06	2.05
12.....	2.01	2.01	(3)	(3)	(3)	(3)	(3)	(3)	2.01	(3)	2.01	(3)	2.01	0
13.....	2.06	2.18	(3)	(3)	(3)	(3)	(3)	(3)	2.13	(3)	2.18	(3)	2.10	2.05
23.....	2.06	2.18	(3)	(3)	(3)	(3)	(3)	(3)	2.13	(3)	2.18	(3)	2.10	2.05
Total.....	.22	.33							.27		.32		.22	.16
February:														
9.....	2.10	2.06	(3)	(3)	(3)	(3)	(3)	(3)	2.06	(3)	2.14	(3)	2.11	2.11
16.....	2.02	2.02	(3)	(3)	(3)	(3)	(3)	(3)	2.03	(3)	2.09	(3)	2.02	2.03
27.....	2.05	2.05	(3)	(3)	(3)	(3)	(3)	(3)	2.05	(3)	2.09	(3)	2.07	2.02
28.....	2.05	2.05	(3)	(3)	(3)	(3)	(3)	(3)	2.03	(3)	2.32	(3)	2.03	2.08
Total.....	.17	.13							.17		.64		.23	.24
March:														
5.....	.05	.03	(3)	(3)	(3)	(3)	(3)	(3)	.03	(3)	.05	(3)	.04	.03
11.....	.35	.40	(3)	(3)	(3)	(3)	(3)	(3)	.56	(3)	.72	(3)	.63	.86
27.....	.09	.06	(3)	(3)	(3)	(3)	(3)	(3)	.07	(3)	.10	(3)	.08	.07
28.....	.02	.02	(3)	(3)	(3)	(3)	(3)	(3)	0	(3)	0	(3)	.04	.05
29.....	.07	.05	(3)	(3)	(3)	(3)	(3)	(3)	.03	(3)	.05	(3)	.06	.07
31.....	0	0	(3)	(3)	(3)	(3)	(3)	(3)	0	(3)	.04	(3)	0	0
Total.....	.56	.56							.69		.96		.85	1.08
April:														
3.....	.09	.10	(3)	(3)	(3)	(3)	(3)	(3)	.10	(3)	.06	(3)	.10	.09
4.....	1.20	1.36	(3)	(3)	(3)	(3)	(3)	(3)	1.45	(3)	1.59	(3)	1.74	2.17
9.....	.06	.11	(3)	(3)	(3)	(3)	(3)	(3)	.09	(3)	.07	(3)	.07	.06
10.....	.35	.35	(3)	(3)	(3)	(3)	(3)	(3)	.39	(3)	.43	(3)	.41	.44
14.....	.11	.13	(3)	(3)	(3)	0.11	(3)	(3)	.12	(3)	.11	(3)	.07	.03
15.....	.07	.02	(3)	(3)	(3)	.05	(3)	(3)	.07	(3)	.08	(3)	.08	.15
17.....	.30	.03	(3)	(3)	(3)	.04	(3)	(3)	.02	(3)	.02	(3)	.02	.03
24.....	.07	.07	(3)	(3)	0.07	.07	0.05	0.06	.05	(3)	.09	(3)	.17	.15
26.....	.17	.18	(3)	(3)	.20	.18	.16	.16	.14	(3)	.14	(3)	.13	.11
Total.....	2.42	2.35							2.43		2.59		2.79	3.23
May:														
6.....	.17	.17	(3)	(3)	.17	.17	.17	.17	.16	(3)	.18	(3)	.18	.19
20.....	.90	.87	(3)	(3)	.86	.81	.86	.82	.76	(3)	.71	(3)	.67	.66
22.....	.32	.38	(3)	(3)	.39	.38	.36	.33	.39	(3)	.60	(3)	.58	.71
26.....	.40	.45	(3)	(3)	.44	.43	.53	.49	.37	(3)	.37	(3)	.36	.41
27.....	0	.02	(3)	(3)	0	0	.03	.06	0	(3)	0	(3)	.03	.14
Total.....	1.79	1.89			1.86	1.79	1.95	1.87	1.68		1.86		1.82	2.11
June:														
1.....	.50	.37	(3)	(3)	.46	.45	.37	.35	.48	(3)	.49	(3)	.38	.45
2.....	0	.03	(3)	(3)	0	0	0	0	0	(3)	0	(3)	0	.05
8.....	.43	.27	(3)	(3)	.31	.27	.25	.21	.22	(3)	.20	(3)	.26	.14
9.....	.32	.37	(3)	(3)	.38	.38	.39	.38	.38	(3)	.33	(3)	.36	.61
10.....	0	0	(3)	(3)	.01	.01	0	0	0	(3)	0	(3)	.01	0
12.....	.46	.33	(3)	(3)	.37	.37	.32	.33	.39	(3)	.31	(3)	.23	.22
15.....	.93	.60	(3)	(3)	.70	.66	.60	.51	.38	(3)	.25	(3)	.07	.03
19.....	.02	0	(3)	(3)	0	0	0	0	0	(3)	0	(3)	0	.01
20.....	2.29	1.23	(3)	(3)	1.49	1.32	.96	.89	.79	(3)	.89	(3)	.72	.72
21.....	.14	.24	(3)	(3)	.24	.27	.19	.19	.13	(3)	.45	(3)	.39	.40
25.....	.51	.61	(3)	(3)	.61	.67	.53	.45	.41	(3)	.42	(3)	.62	.71
Total.....	5.60	4.05			4.57	4.40	3.61	3.31	3.18		3.34		3.04	3.34
July:														
1.....	.50	.39	(3)	(3)	.46	.36	.33	.37	.61	(3)	.59	(3)	.56	.76
4.....	.09	.08	(3)	(3)	.07	.11	.10	.06	.15	(3)	.26	(3)	.28	.15
5.....	.03	.05	(3)	(3)	.06	.02	.02	.04	.04	(3)	.02	(3)	.02	.14
16.....	.12	.19	(3)	(3)	.13	.12	.16	.14	.14	(3)	.34	(3)	.24	.09
17.....	.14	.14	(3)	(3)	.17	.15	.16	.17	.17	(3)	.16	(3)	.14	.14
18.....	.06	0	(3)	(3)	0	0	0	0	0	(3)	0	(3)	0	0
22.....	.40	.45	(3)	(3)	.45	.46	.49	.41	.41	(3)	.40	(3)	.34	.33
Total.....	1.34	1.30			1.34	1.22	1.26	1.17	1.52		1.77		1.58	1.61
August:														
1.....	.35	.45	(3)	(3)	.56	.58	.47	.37	.33	0.60	.40	0.44	.23	.37
4.....	0	0	(3)	(3)	0	0	0	0	0	.04	0	.06	0	0
7.....	.55	.67	(3)	(3)	.64	.68	.78	.71	.81	.74	.63	.81	.69	.98
8.....	0	0	(3)	(3)	0	0	0	0	0	0	0	0	0	.01
11.....	.65	.78	(3)	(3)	.77	.86	.57	.51	.36	.75	.44	.25	.39	.41
14.....	0	0	(3)	(3)	0	0	0	0	.01	0	.05	.03	.15	.13
15.....	.12	.17	(3)	(3)	.15	.13	.20	.24	.24	.19	.19	.18	.10	.17
20.....	.15	.15	(3)	(3)	.15	.15	.17	.17	.16	.16	.20	.20	.18	.16
25.....	.01	0	(3)	.03	.01	.02	0	0	0	.02	0	0	0	0
26.....	.05	.07	(3)	.02	.05	.05	.06	.06	.06	.06	.06	.07	.07	.08
28.....	.02	.04	(3)	.03	.06	.10	.01	.02	.01	.02	0	.03	0	0
Total.....	1.90	2.33			2.39	2.57	2.26	2.08	1.98	2.58	1.97	2.07	1.81	2.31
September:														
28.....	.05	.02	0.02	.03	.04	.04	.02	.11	.02	.09	.02	.03	.01	.02
Total.....	.05	.02	.02	.03	.04	.04	.02	.11	.02	.09	.02	.03	.01	.02
October:														
8.....	.38	.44	.44	.40	.39	.37	.46	.44	.40	.42	.42	.43	.41	.58
Total.....	.38	.44	.44	.40	.39	.37	.46	.44	.40	.42	.42	.43	.41	.58
November:														
December:														
23.....	2.10	2.11	2.14	2.08	2.11	2.14	2.18	2.09	2.09	2.30	2.14	2.26	2.29	2.18
24.....	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.03	2.03	2.30	2.02	2.02	2.05	2.02
26.....	2.09	2.08	2.09	2.07	2.10	2.09	2.09	2.04	2.08	2.15	2.10	2.15	2.20	2.11
Total.....	.20	.19	.24	.15	.21	.24	.27	.13	.20	.45	.26	.41	.54	.31
Year.....	14.63	13.59							12.54		14.15		13.30	14.99

<sup>1</sup> The record at gage C29R was used for period before Apr. 20, 1939, when B28R was installed.<sup>2</sup> Snow measured in recording rain and snow gage.<sup>3</sup> No record.



TABLE 7.—Daily (midnight to midnight) precipitation at recording stations, 1940

Date	Recording gage													
	A31R	B28R	B32R	B33R	B36R	B38R	C23R	C24R	C31R	C45R	D31R	D45R	E30R	G42R
January:	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>
5	1 0.08	1 0.01	1 0.02	1 0.06	1 0.02	1 0.01	1 0.07	1 0.07	1 0.02	1 0.01	1 0.01	1 0.03	1 0.02	1 0.01
6	0	1 0.07	1 0.15	0	1 0.10	1 0.06	0	0	1 0.12	1 0.18	1 0.21	1 0.19	1 0.10	1 0.11
7	0	0	0	0	0	0	0	0	1 0.04	0	0	1 0.01	1 0.02	0
13	1 0.21	1 0.04	1 0.09	1 0.13	1 0.08	1 0.14	1 0.07	1 0.08	1 0.16	1 0.15	1 0.56	1 0.25	1 0.25	1 0.08
14	0	0	0	0	0	0	0	0	1 0.01	0	1 0.03	0	1 0.01	0
17	1 0.09	1 0.01	1 0.02	0	1 0.02	1 0.04	1 0.02	1 0.03	1 0.05	1 0.07	1 0.29	1 0.04	1 0.11	1 0.03
Total	.38	.13	.28	.19	.22	.25	.16	.18	.40	.41	1.10	.52	.51	.23
February:														
2	0	1 0.02	1 0.01	0	1 0.02	0	1 0.01	0	0	1 0.02	1 0.53	1 0.02	1 0.03	0
3	1 0.22	1 0.17	1 0.23	1 0.09	1 0.34	1 0.17	1 0.14	1 0.16	1 0.37	1 0.35	1 0.45	1 0.45	1 0.60	1 0.32
8	1 0.51	1 0.02	1 0.13	1 0.11	1 0.15	1 0.11	1 0.10	1 0.03	1 0.29	1 0.16	1 0.41	1 0.18	1 0.67	1 0.04
9	0	0	0	0	0	0	0	0	1 0.01	0	0	0	0	0
Total	.73	.21	.37	.20	.51	.28	.25	.19	.67	.53	.94	.65	1.30	.36
March:														
1	1 0.27	1 0.33	1 0.39	1 0.26	1 0.33	1 0.30	1 0.33	1 0.25	1 0.31	1 0.50	1 0.36	1 0.36	1 0.31	1 0.31
2	1 0.08	1 0.06	1 0.09	1 0.05	1 0.07	1 0.10	1 0.12	1 0.03	1 0.09	1 0.11	1 0.11	1 0.15	1 0.14	1 0.16
11	1 0.09	1 0.07	1 0.23	1 0.08	1 0.11	1 0.11	1 0.08	1 0.09	1 0.08	1 0.14	1 0.09	1 0.24	1 0.09	1 0.08
12	1 0.01	1 0.01	1 0.01	1 0.01	1 0.03	1 0.04	1 0.02	1 0.01	1 0.01	1 0.01	1 0.03	1 0.03	1 0.03	1 0.03
28	0.02	0.05	0.04	0.04	0.04	0.06	0.04	0.02	0.02	0.05	0.03	0.07	0.05	0.05
Total	.47	.52	.75	.44	.58	.61	.59	.40	.51	.70	.62	.82	.62	.63
April:														
6	0.19	0.20	0.29	0.15	0.20	0.22	0.21	0.15	0.27	0.35	0.32	0.33	0.38	0.37
7	0.05	0.06	0.04	0.03	0.02	0.03	0	0	0	0.03	0	0.19	0	0.19
9	0	0.04	0.04	0.02	0.03	0.07	0.06	0.07	0.10	0.08	0.24	0.20	0.20	0.19
10	0	0.02	0.05	0	0	0.02	0.04	0.05	0.04	0.44	0.13	0.18	0.05	0.06
16	0.30	0.29	0.32	0.30	0.33	0.33	0.32	0.30	0.33	0.34	0.34	0.37	0.34	0.37
17	0.33	0.36	0.35	0.33	0.35	0.34	0.41	0.38	0.37	0.35	0.42	0.41	0.46	0.49
22	0.10	0.04	0.06	0.05	0.05	0.06	0.02	0	0	0.06	0	0.04	0	0.04
27	0.10	0.06	0.08	0.09	0.09	0.08	0.06	0.06	0.09	0.06	0.07	0.05	0.07	0.06
Total	.97	1.07	1.23	.97	1.07	1.15	1.12	1.01	1.20	1.37	1.52	1.57	1.50	1.58
May:														
6	0	0.01	0	0	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.05	0.08
7	0.14	0.18	0.20	0.11	0.23	0.16	0.18	0.17	0.11	0.11	0.16	0.16	0.19	0.07
13	0.22	0.31	0.24	0.23	0.27	0.30	0.42	0.29	0.18	0.35	0.11	0.19	0.12	0.20
17	1 0.45	1 0.29	1 0.43	1 0.41	1 0.56	1 0.24	0.94	0.86	0.89	0.88	1 0.05	0.85	0.98	1 0.06
18	0.27	0.29	0.29	0.27	0.29	0.30	0.29	0.28	0.33	0.30	0.32	0.31	0.27	0.25
20	0.22	0.18	0.19	0.21	0.19	0.18	0.18	0.20	0.21	0.19	0.27	0.24	0.27	0.22
30	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.04	0.04	0.04	0.03
Total	2.33	2.30	2.39	2.27	2.59	2.23	2.06	1.84	1.76	1.88	1.97	1.81	1.92	1.91
June:														
5	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.01
6	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.02	0.03	0.02
7	0.01	0.01	0.03	0.01	0.01	0	0.01	0.03	0	0	0	0	0	0
8	1 0.13	1 0.16	1 0.09	1 0.10	1 0.08	1 0.14	1 0.13	1 0.11	1 0.14	1 0.16	1 0.07	1 0.14	1 0.07	0.96
22	0.10	0.17	0.21	0.21	0.21	0.25	0.14	0.20	0.37	0.42	0.48	0.42	0.52	1.10
Total	1.28	1.37	1.36	1.36	1.34	1.43	1.32	1.38	1.55	1.62	1.60	1.61	1.65	2.09
July:														
1	0	0	0	0	0	0	0	0	0	0	0	0	0.10	0.11
8	0.06	0.06	0.08	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.07	0.06	0.06	0.07
15	0	0	0	0	0	0	0	0.03	0	0	0.02	0	0	0
20	0.07	0.12	0.08	0.07	0.10	0.10	0.09	0.08	0.06	0.13	0	0.12	0	0.04
25	0.05	0	0	0	0	0	0	0	0	0	0	0.04	0.02	0.01
26	0	0	0	0	0	0	0	0	0	0	0	0	0.08	0.05
27	0.19	0.17	0.18	0.19	0.16	0.13	0.18	0.19	0.15	0.12	0.11	0.12	0.11	0.24
30	0	0	0	0	0	0.03	0	0	0	0	0	0	0	0
Total	.37	.35	.34	.33	.33	.32	.33	.36	.27	.31	.20	.34	.37	.52
August:														
3	0.06	0.09	0.08	0.07	0.08	0.11	0.09	0.10	0.15	0.13	0.18	0.17	0.12	0.11
4	0.38	0.40	0.38	0.45	0.46	0.44	0.44	0.38	0.25	0.34	0.28	0.28	0.25	0.31
5	0.08	0.08	0.09	0.08	0.08	0.06	0.05	0.02	0.02	0.05	0	0.02	0.01	0.01
8	0.18	0.26	0.25	0.22	0.28	0.31	0.19	0.19	0.18	0.31	0.16	0.18	0.13	0.14
12	0.41	0.17	0.19	0.33	0.15	0.07	0.09	0.08	0.06	0.07	0.08	0.10	0.08	0.38
17	0.08	0.07	0.06	0.10	0.07	0.08	0.11	0.09	0.06	0.06	0.06	0.05	0.04	0.03
25	0.21	0.11	0.13	0.15	0.11	0.11	0.12	0.09	0.05	0.12	0.01	0.03	0.05	0.17
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0.03
27	0.32	0.26	0.28	0.27	0.25	0.18	0.13	0.10	0.07	0.11	0.04	0.04	0.01	0
Total	1.72	1.44	1.46	1.67	1.48	1.36	1.22	1.05	.84	1.19	.81	.87	.69	1.18
September:														
4	0.03	0.03	0.05	0.06	0.07	0.07	0.02	0.03	0.04	0.07	0.06	0.05	0.05	0.05
9	0.01	0.01	0.02	0.01	0	0.02	0	0	0.01	0.01	0.03	0.05	0.05	0.04
22	0.13	0.13	0.15	0.12	0.14	0.15	0.16	0.15	0.16	0.15	0.16	0.18	0.21	0.19
23	0.51	0.54	0.56	0.52	0.55	0.53	0.51	0.57	0.54	0.57	0.58	0.54	0.53	0.59
24	0.85	0.71	0.67	0.82	0.61	0.65	0.70	0.66	0.56	0.63	0.52	0.50	0.39	0.41
Total	1.53	1.42	1.45	1.53	1.37	1.42	1.39	1.41	1.31	1.43	1.35	1.32	1.23	1.28

1 Snow measured in recording rain and snow gage.



TABLE 7.—Daily (midnight to midnight) precipitation at recording stations, 1940—Continued

Date	Recording gage													
	A31R	B2SR	B32R	B33R	B36R	B38R	C23R	C24R	C31R	C45R	D31R	D45R	E30R	G42R
October:	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>
1	0.29	0.25	0.27	0.27	0.25	0.24	0.20	0.23	0.24	0.27	0.28	0.29	0.28	0.30
2	.26	.21	.24	.19	.21	.20	.21	.18	.20	.21	.18	.18	.12	.14
5	.01	.03	.03	.01	.02	.02	.01	0	.02	.02	.03	.03	.03	.03
6	.04	.04	.04	.05	.05	.06	.05	.06	.13	.17	.07	.08	.04	.03
9	.03	.02	.04	.03	.03	.05	.02	.02	.03	.06	.06	.06	.07	.06
10	.06	.06	.05	.06	.06	.06	.05	.05	.08	.07	.09	.08	.08	.10
27	.17	.13	.11	.12	.08	.05	.13	.11	.03	.01	0	0	0	0
28	.34	.30	.30	.31	.26	.30	.33	.32	.29	.31	.26	.29	.26	.25
30	.06	.05	.05	.06	.05	.06	.04	.04	.04	.05	.04	.04	.04	.06
Total	1.26	1.09	1.13	1.10	1.01	1.04	1.04	1.01	1.06	1.17	1.01	1.05	.92	.97
November:														
8	.15	.15	.15	.14	.15	.18	.13	.16	.16	.16	.16	.16	.15	.20
9	.42	.43	.43	.42	.50	.48	.41	.45	.55	.49	.61	.56	.61	.51
10	.18	1.20	1.19	1.22	1.15	1.40	1.28	1.25	1.29	1.35	1.23	1.31	1.26	1.37
11														
18	1.02	1.02	1.02	1.01	1.02	1.02	1.02	1.02	1.02	1.02	1.04	1.05	1.04	1.08
19														
20	.02	.04	.04	.02	.05	.06	.03	.03	.02	.04	.04	.07	.06	.04
21	1.20	1.14	1.17	1.20	1.13	1.16	1.16	1.18	1.17	1.18	1.16	1.17	1.14	1.17
25	1.34	1.43	1.49	1.30	1.40	1.31	1.49	1.44	1.43	1.52	1.56	1.58	1.51	1.50
26	1.04	1.03	1.03	1.02	1.40	1.02	1.04	1.04	1.04	1.09	1.04	1.08	1.05	1.06
Total	1.37	1.44	1.52	1.33	1.40	1.63	1.56	1.57	1.68	1.85	1.84	1.98	1.82	1.93
December:														
2	1.01	1.01	1.03	1.01	1.01	1.01	1.02	1.02	1.01	1.02	1.02	1.03	1.02	1.03
12	1.06	1.06	1.06	1.04	1.05	1.05	1.07	1.08	1.06	1.08	1.08	1.08	1.08	1.07
13	1.20	1.20	1.25	1.14	1.20	1.17	1.17	1.19	1.15	1.19	1.24	1.14	1.25	1.18
14														
15	1.13	1.16	1.07	1.12	1.11	1.18	1.10	1.13	1.18	1.20	1.16	1.11	1.13	1.17
16	0	0	0	0	0	.01	0	0	0	0	0	0	0	0
31	.06	.07	.08	.07	.05	.05	.05	.05	.07	.06	.05	.08	.06	.04
Total	.46	.50	.49	.38	.42	.47	.41	.47	.47	.71	.55	.60	.54	.49
Year	12.87	11.84	12.77	11.77	12.32	12.19	12.84	11.45	11.72	13.17	13.51	13.14	13.07	13.17

<sup>1</sup> Snow measured in recording rain and snow gage.

TABLE 8.—Excessive<sup>1</sup> rainfall at the central meteorological station, 1939<sup>2</sup>–40

Date	Maximum depth and average intensity for time interval of—																	
	2 minutes		5 minutes		10 minutes		15 minutes		20 minutes		30 minutes		1 hour		2 hours		4 hours	
	Depth	Intensity	Depth	Intensity	Depth	Intensity	Depth	Intensity	Depth	Intensity	Depth	Intensity	Depth	Intensity	Depth	Intensity	Depth	Intensity
	<i>Inches</i>	<i>Inches per hour</i>	<i>Inches</i>	<i>Inches per hour</i>	<i>Inches</i>	<i>Inches per hour</i>	<i>Inches</i>	<i>Inches per hour</i>	<i>Inches</i>	<i>Inches per hour</i>	<i>Inches</i>	<i>Inches per hour</i>	<i>Inches</i>	<i>Inches per hour</i>	<i>Inches</i>	<i>Inches per hour</i>	<i>Inches</i>	<i>Inches per hour</i>
May 20, 1939	0.08	2.40	0.19	2.28	0.31	1.86	0.43	1.72	0.49	1.47	0.53	1.06	0.59	0.59	0.56	0.32	0.65	0.16
June:																		
12	.10	3.00	.22	2.64	.30	1.80	.33	1.32	.35	1.05	.37	.74						
15	.15	4.50	.33	3.96	.54	3.24	.63	2.52	.66	1.98								
20	.16	4.80	.26	3.12	.35	2.10	.58	2.32	.67	2.01	.81	1.62	.97	.97	.97	.48	1.32	.33
August:																		
1	.19	5.70	.36	4.32	.47	2.82												
11	.18	5.40	.44	5.28	.73	4.38	.80	3.20	.83	2.49	.86	1.72						
June 8, 1940	.10	3.00	.21	2.52	.34	2.04	.51	2.04	.62	1.86	.78	1.56	.95	.95	1.11	.56	1.14	.28
August 4	.07	2.10	.15	1.80	.30	1.80	.38	1.52	.40	1.20	.42	.84	.44	.44				

<sup>1</sup> All storms having a rainfall depth of 0.20 inch plus the product of 0.01 inch times the duration in minutes (0.25 inch in 5 minutes, 0.30 inch in 10 minutes, or 0.80 inch in 1 hour, etc.) are defined as "excessive," and the amounts and intensities are tabulated for the selected time intervals for the duration of the storm.

<sup>2</sup> Recording rain gage B38R. Period of record from Apr. 10 to Dec. 31, 1939.



TABLE 9.—*Soil-moisture content (percent of dry weight) at designated depths, watersheds 1-H to 17-H, 1939*

Watershed and date	Soil-moisture content at depth <sup>1</sup> of—							Watershed and date	Soil-moisture content at depth <sup>1</sup> of—						
	0-½ foot	½-1 foot	1-2 feet	2-3 feet	3-4 feet	4-5 feet	5-6 feet		0-½ foot	½-1 foot	1-2 feet	2-3 feet	3-4 feet	4-5 feet	5-6 feet
Watershed 1-H:	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	Watershed 9-H:	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
Apr. 13.....	32	28	14	12	12	12	12	May 26 <sup>2</sup> .....	18	20	18	16	15	16	16
Sept. 26.....	13	14	12	11	11	12	12	Sept. 27.....	10	13	15	14	14	13	14
Watershed 2-H:								Watershed 10-H:							
Apr. 13.....	30	23	10	12	12	13	14	May 26 <sup>2</sup> .....	20	23	20	16	14	16	18
Sept. 26.....	12	12	10	11	12	12	13	Sept. 27.....	11	14	15	16	16	14	14
Watershed 3-H:								Watershed 11-H:							
Apr. 24 <sup>2,3</sup> .....	22	22	16	14	14	15	18	Apr. 19.....	26	26	19	16	15	16	18
May 25 <sup>4</sup> .....	22	22	18	16	15	16	18	June 30.....	18	17	14	13	15	17	18
June 28 <sup>3</sup> .....	15	14	14	13	14	15	17	Sept. 20.....	13	14	13	12	14	16	18
Sept. 26 <sup>4</sup> .....	12	16	15	15	15	15	19	Watershed 12-H:							
Watershed 4-H:								Apr. 19.....	26	25	20	16	16	18	19
May 24.....	21	22	16	16	17	18	18	June 27.....	18	15	14	13	15	17	18
Sept. 26.....	10	14	14	14	14	15	18	Watershed 13-H:							
Watershed 5-H:								Apr. 20 <sup>3</sup> .....	25	21	13	12	12	12	10
Apr. 14 <sup>4</sup> .....	24	20	15	14	14	15	17	May 25 <sup>4</sup> .....	18	20	14	12	12	12	12
May 24 <sup>4</sup> .....	19	18	16	15	14	13	14	July 1 <sup>3</sup> .....	21	15	14	12	11	11	11
June 28 <sup>3</sup> .....	16	12	13	14	14	15	17	Sept. 28 <sup>2,4</sup> .....	11	14	13	11	11	12	12
Sept. 26 <sup>4</sup> .....	8	12	16	14	14	15	15	Watershed 14-H:							
Watershed 6-H:								May 25.....	21	19	15	12	12	11	13
Apr. 14 <sup>2</sup> .....	24	23	16	16	17	17	18	Sept. 28 <sup>2</sup> .....	14	14	14	12	12	12	12
June 29.....	17	14	14	15	16	17	17	Watershed 15-H:							
Sept. 20.....	12	13	13	13	13	14	14	May 26 <sup>2</sup> .....	21	20	16	13	15	17	17
Watershed 7-H:								Sept. 28 <sup>2</sup> .....	12	14	12	13	15	16	17
Apr. 13.....	24	19	15	14	15	16	17	Watershed 16-H:							
June 27.....	18	12	12	14	14	16	18	Apr. 20.....	26	21	14	13	16	17	19
Sept. 20.....	12	12	13	13	14	16	15	June 30.....	20	15	13	14	16	18	19
Watershed 8-H:								Sept. 20.....	12	14	13	13	15	17	18
May 24.....	20	22	16	15	15	17	17	Watershed 17-H:							
Sept. 25.....	10	12	15	14	15	17	21	Apr. 19.....	26	17	14	14	16	17	18
								June 30.....	13	13	13	13	14	15	17

<sup>1</sup> 4 points sampled in duplicate and data averaged for each depth interval.<sup>2</sup> Samples taken before rain.<sup>3</sup> Samples were taken near the time of planting and harvesting of oats strips.<sup>4</sup> Samples taken at time of planting and maturity of corn strips.TABLE 10.—*Soil-moisture content (percent of dry weight) at designated depths, watersheds 1-H to 18-H, 1940*

Watershed and date	Soil-moisture content at depth <sup>1</sup> of—							Watershed and date	Soil-moisture content at depth <sup>1</sup> of—						
	0-½ foot	½-1 foot	1-2 feet	2-3 feet	3-4 feet	4-5 feet	5-6 feet		0-½ foot	½-1 foot	1-2 feet	2-3 feet	3-4 feet	4-5 feet	5-6 feet
Watershed 1-H:	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	Watershed 10-H:	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
Apr. 8.....	30	23	13	11	12	12	12	Apr. 3.....	19	20	19	16	15	16	19
Nov. 25 <sup>2</sup> .....	28	15	11	11	11	11	12	July 9.....	6	9	12	13	12	14	16
Watershed 2-H:								Oct. 8.....	16	11	13	15	13	14	16
Apr. 8.....	27	16	11	11	12	16	14	Watershed 11-H:							
Nov. 22.....	31	15	9	11	11	13	14	July 12.....	8	9	11	11	12	13	14
Watershed 3-H:								Dec. 10.....	27	26	15	14	13	14	15
Apr. 2 <sup>3</sup> .....	19	18	16	15	14	15	17	Watershed 12-H:							
May 16 <sup>4</sup> .....	19	23	19	14	13	13	14	May 20 <sup>2</sup> .....	24	23	21	19	22	15	15
July 6.....	8	12	13	12	13	14	15	Oct. 7.....	20	18	17	17	17	17	16
Oct. 4 <sup>4</sup> .....	20	18	15	14	14	15	15	Watershed 13-H:							
Watershed 4-H:								Apr. 3 <sup>3</sup> .....	15	13	12	10	11	11	11
May 21.....	24	19	15	13	13	16	17	May 20 <sup>2,4</sup> .....	24	19	13	10	9	9	10
Oct. 4.....	22	17	16	15	15	17	19	July 10 <sup>2</sup> .....	8	8	10	9	10	10	11
Watershed 5-H:								Oct. 7 <sup>4</sup> .....	20	14	14	12	11	11	12
Apr. 2 <sup>3</sup> .....	16	15	16	13	13	14	15	Watershed 14-H:							
May 16 <sup>4</sup> .....	18	22	20	15	13	12	13	Apr. 3.....	21	18	15	12	11	11	12
July 8 <sup>2,3</sup> .....	6	8	11	11	12	13	12	July 9.....	8	10	10	9	10	10	10
Oct. 3 <sup>4</sup> .....	23	18	17	16	16	14	15	Oct. 8.....	17	12	12	11	11	11	13
Watershed 6-H:								Watershed 15-H:							
Apr. 8.....	20	17	16	16	15	16	18	Apr. 4.....	20	19	18	17	18	18	18
July 13.....	6	7	10	11	13	16	15	July 10.....	11	10	11	12	13	15	17
Dec. 11.....	24	22	14	14	14	17	17	Oct. 8.....	17	12	13	13	12	13	14
Watershed 7-H:								Watershed 16-H:							
Apr. 9 <sup>2</sup> .....	19	15	12	12	12	13	15	July 12.....	7	7	9	10	12	14	16
July 13.....	6	7	10	10	11	12	14	Nov. 8 <sup>2</sup> .....	16	12	11	12	13	15	17
Dec. 11.....	23	22	13	12	13	14	16	Watershed 17-H:							
Watershed 8-H:								May 16.....	21	23	18	14	13	14	14
May 16.....	16	15	16	14	14	17	19	Oct. 4.....	19	14	14	13	13	14	15
Oct. 3.....	23	16	15	15	16	17	19	Watershed 18-H:							
Watershed 9-H:								May 16.....	18	15	12	13	14	13	15
Apr. 3.....	17	17	15	15	15	15	15	Nov. 7.....	9	9	11	12	13	13	16
July 9.....	6	9	11	12	13	13	15								
Oct. 9 <sup>2</sup> .....	16	10	14	14	14	14	15								

<sup>1</sup> 4 points sampled in duplicate and data averaged for each depth interval.<sup>2</sup> Samples taken before rain.<sup>3</sup> Samples taken near the time of planting and harvesting of the oats strips.<sup>4</sup> Samples taken near the time of planting and harvesting of the corn strips.TABLE 11.—*Soil-moisture content (percent of dry weight) at designated depths in pasture plots 51-H, 52-H, 53-H, and 54-H, 1939*

Plot and date	Soil-moisture content at depth of—				Plot and date	Soil-moisture content at depth of—			
	0-1 foot	1-2 feet	2-3 feet	3-4 feet		0-1 foot	1-2 feet	2-3 feet	3-4 feet
51-H, unfurrowed <sup>1,2</sup> .....	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	53-H, furrowed: <sup>3,4</sup>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
52-H, furrowed: <sup>3,4</sup>	10	12	12	13	Midway between furrows.....	8	10	11	12
Midway between furrows.....	9	11	12	13	3 feet uphill from furrows.....	8	11	12	12
3 feet uphill from furrows.....	9	11	12	13	In furrows.....	24	21	20	13
In furrows.....	24	21	20	13	3 feet downhill from furrows.....	9	12	12	13
3 feet downhill from furrows.....	9	12	12	13	54-H, unfurrowed <sup>1,5</sup> .....	8	11	12	13

<sup>1</sup> 3 points, 1 each at upper, center, and lower end of unfurrowed plot, were sampled in duplicate for each depth interval, and the data were averaged.<sup>2</sup> Sampled July 25.<sup>3</sup> 3 furrows, 1 each at upper, center, and lower end of furrowed plot, were sampled in duplicate for each depth interval, and the data for the 3 furrows were averaged.<sup>4</sup> Sampled July 26.<sup>5</sup> Sampled July 27.



TABLE 12.—Soil-moisture content (percent of dry weight) at designated depths in pasture plots 51-H to 58-H, 1940

Plot and date	Soil-moisture content at depth of—				Plot and date	Soil-moisture content at depth of—			
	0-1 foot	1-2 feet	2-3 feet	3-4 feet		0-1 foot	1-2 feet	2-3 feet	3-4 feet
51-H, unfurrowed: <sup>1</sup>	Percent	Percent	Percent	Percent	55-H, furrowed: <sup>2</sup>	Percent	Percent	Percent	Percent
June 24.....	9	11	11	11	Midway between furrows:				
Oct. 31.....	12	11	10	12	June 27.....	8	9	11	12
52-H, furrowed: <sup>2</sup>					Nov. 4.....	11	11	11	12
Midway between furrows:					3 feet uphill from furrows:				
June 24.....	9	10	11	12	June 27.....	8	10	9	12
Oct. 31.....	12	11	10	12	Nov. 4.....	10	12	12	13
3 feet uphill from furrows:					In furrows:				
June 24.....	9	10	11	11	June 27.....	19	20	21	18
Oct. 31.....	13	11	12	12	Nov. 4.....	13	19	17	16
In furrows:					3 feet downhill from furrows:				
June 24.....	18	20	20	19	June 27.....	8	10	11	12
Oct. 31.....	20	14	11	12	Nov. 4.....	10	11	11	12
3 feet downhill from furrows:					56-H, unfurrowed: <sup>1</sup>				
June 24.....	9	11	11	12	June 27.....	8	10	10	11
Oct. 31.....	10	11	11	12	Nov. 4.....	11	11	10	12
53-H, furrowed: <sup>2</sup>					57-H, unfurrowed: <sup>1</sup>				
Midway between furrows:					June 26.....	8	10	11	12
June 25.....	8	10	11	11	Nov. 6.....	11	11	11	13
Nov. 1.....	10	11	11	12	58-H, furrowed: <sup>2</sup>				
3 feet uphill from furrows:					Midway between furrows:				
June 25.....	9	10	12	13	June 26.....	8	10	11	12
Nov. 1.....	15	11	11	11	Nov. 7.....	11	12	12	12
In furrows:					3 feet uphill from furrows:				
June 25.....	16	19	18	10	June 26.....	8	11	11	12
Nov. 1.....	18	12	11	11	Nov. 7.....	10	12	12	13
3 feet downhill from furrows:					In furrows:				
June 25.....	9	11	11	12	June 26.....	22	21	13	13
Nov. 1.....	11	12	11	12	Nov. 7.....	23	24	16	13
54-H, unfurrowed: <sup>1</sup>					3 feet downhill from furrows:				
June 25.....	9	11	11	12	June 26.....	8	11	12	12
Nov. 1.....	13	11	12	13	Nov. 7.....	10	12	12	12

<sup>1</sup> 3 points, 1 each at upper, center, and lower end of unfurrowed plot were sampled in duplicate and data averaged for each depth interval.

<sup>2</sup> 3 furrows, 1 each at upper, center, and lower end of furrowed plot were sampled in duplicate and the data at the 3 furrows averaged for each depth interval.

TABLE 13.—Area, elevation, length, slope, soil, and land use for all watersheds, 1939-40

Run-off station No.	Drainage area		Elevation (mean sea level)		Length of principal water-course	Area in slope range of—					Average slope <sup>1</sup>	Predominant soil		Area in—				
			Lowest	Highest		Less than 2 percent	2-5 percent	5-8 percent	8-12 percent	12 percent and over		Series and type	Extent	Meadow	Pasture	Cultivation	Other uses	
	Square miles	Acres	Feet	Feet	Feet	Percent	Percent	Percent	Percent	Percent	Percent		Percent	Percent	Percent	Percent	Percent	
3-----	0.75	481	1,925	2,002	8,920	26	28	21	15	10	5.4	Hastings silt loam-----	44	2	15	80	3	
8-----	3.26	2,086	1,872	2,002	26,100	20	24	36	14	6	5.6	do-----	45	5	18	74	3	
11-----	5.45	3,490	1,836	2,002	38,300	20	31	34	10	5	5.2	do-----	55	4	20	73	3	
5-----	.64	411	1,898	2,008	7,560	14	25	43	9	9	5.9	do-----	67	9	11	77	3	
1-H-----	3.62		1,943	1,979	430	4	12	43	37	4	7.2	do-----	100	100	0	0	0	
2-H-----	3.40		1,944	1,973	600	8	38	25	19	10	6.7	do-----	70	100	0	0	0	
3-H-----	3.95		1,941	1,972	610	1	36	39	19	5	6.1	do-----	62	0	0	100	0	
4-H-----	3.84		1,947	1,979	510	1	41	39	15	4	6.2	do-----	79	0	0	100	0	
5-H-----	3.93		1,945	1,977	660	2	51	33	11	3	4.9	do-----	91	0	0	100	0	
6-H-----	4.16		1,947	1,973	600	6	63	21	9	1	4.4	do-----	76	0	0	100	0	
7-H-----	4.15		1,950	1,971	610	11	42	41	4	2	4.6	do-----	62	0	0	100	0	
8-H-----	3.93		1,963	1,979	620	16	74	10	0	0	3.0	do-----	93	0	0	100	0	
9-H-----	3.78		1,941	1,961	530	14	42	37	7	0	4.8	do-----	100	0	0	100	0	
10-H-----	3.98		1,942	1,962	390	5	60	35	0	0	3.9	do-----	100	0	0	100	0	
11-H-----	3.85		1,951	1,975	600	16	37	42	5	0	4.5	do-----	100	0	0	100	0	
12-H-----	3.66		1,950	1,979	590	4	41	30	23	2	5.8	do-----	100	0	0	100	0	
13-H-----	3.41		1,942	1,971	440	2	31	57	10	0	5.6	Holdredge silty clay loam-----	49	0	0	100	0	
14-H-----	3.35		1,954	1,979	475	0	41	46	13	0	5.4	Hastings silt loam-----	85	0	0	100	0	
15-H-----	3.62		1,933	1,963	525	3	23	62	11	1	5.8	do-----	75	0	0	100	0	
16-H-----	3.57		1,949	1,975	460	2	61	32	4	1	4.6	do-----	97	0	0	100	0	
17-H-----	3.96		1,949	1,976	490	3	27	38	27	5	7.0	do-----	62	0	0	100	0	
18-H-----	3.74		1,944	1,974	525	4	37	52	6	1	4.9	do-----	100	0	100	0	0	
51-H-----	.69		1,940	1,965	310	0	17	39	38	6	8.0	Holdredge silt loam-----	75	0	100	0	0	
52-H-----	.69		1,940	1,965	308	0	0	59	38	3	8.1	do-----	70	0	100	0	0	
53-H-----	.69		1,942	1,967	308	0	8	36	56	0	8.1	do-----	60	0	100	0	0	
54-H-----	.69		1,943	1,968	308	0	10	37	53	0	8.1	do-----	65	0	100	0	0	
55-H-----	.69		1,954	1,972	308	0	10	90	0	0	5.8	Hastings silt loam-----	100	0	100	0	0	
56-H-----	.69		1,956	1,974	308	0	25	75	0	0	5.8	do-----	100	0	100	0	0	
57-H-----	.69		1,956	1,973	308	0	10	90	0	0	5.5	do-----	100	0	100	0	0	
58-H-----	.69		1,955	1,972	308	0	23	77	0	0	5.5	do-----	100	0	100	0	0	

<sup>1</sup> Average slope for watersheds 3, 5, 8, and 11 is the weighted averaged of the slope groups in the 5 preceding columns; that for watersheds 1-H to 18-H is obtained by the contour-length method; and that for pasture plots 51-H to 58-H is the quotient of the difference in elevation of the highest and lowest points in the plot and the length of the watercourse.



TABLE 14.—Instrumentation for each watershed

Watershed No.	Run-off measuring station <sup>1</sup>						Rain gages		Watershed No.	Run-off measuring station <sup>1</sup>						Rain gages					
	Date record started	Location			Station type <sup>2</sup>	Re-cording	Nonre-cording	Date record started		Location			Station type <sup>2</sup>	Re-cording	Nonre-cording						
		Latitude	Longitude							Latitude	Longitude										
		°	'	''	°	'	''		Number	Number		°	'	''	°	'	''		Number	Number	
3-----	July 1938	40	15	47	98	22	31	CM	4	4	12-H-----	Apr. 1939	40	15	54	98	22	51	3-H	1	0
8-----	July 1938	40	13	51	98	22	41	CMS	7	14	13-H-----	Apr. 1939	40	15	40	98	23	01	3-H	1	0
11-----	Apr. 1939	40	12	15	98	22	01	CMS	9	25	14-H-----	Apr. 1939	40	15	36	98	23	07	3-H	1	0
5-----	June 1939	40	14	41	98	21	48	CM	2	4	15-H-----	Apr. 1939	40	15	24	98	22	53	3-H	1	0
1-H-----	Mar. 1939	40	16	02	98	22	08	3-H	1	1	16-H-----	Apr. 1939	40	15	24	98	23	05	3-H	1	0
2-H-----	Mar. 1939	40	15	54	98	22	12	3-H	1	1	17-H-----	Apr. 1939	40	15	31	98	23	00	3-H	1	0
3-H-----	Mar. 1939	40	15	50	98	22	24	3-H	1	1	18-H-----	July 1939	40	16	29	98	22	13	3-H	1	0
4-H-----	Apr. 1939	40	15	56	98	22	24	3-H	1	0	51-H-----	Aug. 1939	40	16	01	98	22	37	2-H	1	0
5-H-----	Apr. 1939	40	16	00	98	22	27	3-H	1	0	52-H-----	Aug. 1939	40	16	02	98	22	37	2-H	1	0
6-H-----	Apr. 1939	40	16	04	98	22	27	3-H	1	1	53-H-----	Aug. 1939	40	16	04	98	22	37	2-H	1	0
7-H-----	Apr. 1939	40	16	06	98	22	26	3-H	1	1	54-H-----	June 1939	40	16	05	98	22	36	2-H	1	0
8-H-----	Mar. 1939	40	16	06	98	22	17	3-H	1	0	55-H-----	Aug. 1939	40	16	29	98	22	13	2-H	1	0
9-H-----	Apr. 1939	40	15	51	98	22	39	3-H	1	0	56-H-----	Aug. 1939	40	16	32	98	22	10	2-H	1	0
10-H-----	Apr. 1939	40	15	58	98	22	43	3-H	1	0	57-H-----	Aug. 1939	40	16	35	98	22	10	2-H	1	0
11-H-----	Apr. 1939	40	15	55	98	22	49	3-H	1	0	58-H-----	Aug. 1939	40	16	38	98	22	14	2-H	1	0

<sup>1</sup> Each station equipped with a vertical drum water-stage recorder with scales of 1 inch on chart equals 25 minutes of time and 0.2 foot of stage.

<sup>2</sup> 2-H, H flume, 2 feet deep; 3-H, H flume 3 feet deep; CM, current-meter station with artificial control; CMS, current-meter station with artificial control and auxiliary slope recorder for high flows.

TABLE 15.—Land use distribution in each watershed, 1938

Watershed No.	Crops, inter-tilled <sup>1</sup>		Crops, drilled or broadcast <sup>1</sup>						Mead-ow	Pasture	Fallow	Idle	Alfalfa	Farm-steads	Roads	Remarks <sup>2</sup>
	Corn	Sor-gum	Wheat	Oats	Barley	Rye	Sor-gum	Millet								
	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	
3-----	150	10	138	71	3	5	4	0	8	70	0	0	7	12	3	71 acres oats, 3 acres barley, 5 acres rye, 40 acres corn, and 44 acres winter wheat, all followed by winter wheat.
8-----	584	45	678	136	3	12	23	2	93	387	39	0	17	21	46	136 acres oats, 3 acres barley, 12 acres rye, 39 acres fallow, 100 acres corn, and 141 acres winter wheat, all followed by winter wheat.
11-----	777	86	1,227	215	13	26	43	4	106	722	136	4	21	47	63	215 acres oats, 26 acres rye, 13 acres barley, 136 acres fallow, 150 acres corn, and 313 acres winter wheat, all followed by winter wheat.

<sup>1</sup> See pp. 3-4 for a description of general farm practices.

<sup>2</sup> Notations in this column are estimates based on the acreage of wheat harvested in 1939 and the general farm practices.

TABLE 16.—Land use distribution in each watershed, 1939 <sup>1</sup>

Watershed No.	Crops inter-tilled <sup>2</sup>		Crops drilled or broadcast <sup>2</sup>						Mead-ow	Pas-ture	Fal-low	Idle	Alfalfa	Sweet clover	Farm-steads	Roads	Remarks <sup>3</sup>
	Corn	Sor-gum	Wheat	Oats	Barley	Rye	Sor-gum	Millet									
	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	
3-----	110	22	163	64	10	5	8	0	8	74	2	0	0	0	12	3	2 acres fallow and 55 acres oats, both followed by winter wheat.
8-----	490	115	431	195	56	30	87	0	113	370	125	2	6	0	23	43	125 acres fallow and 5 acres oats, both followed by winter wheat.
11-----	774	160	853	245	81	111	126	5	138	684	178	6	7	0	59	63	145 acres fallow followed by winter wheat.
5-----	145	35	32	6	19	15	10	0	43	38	49	0	0	5	11	3	2 acres fallow followed by winter wheat.
3-H-----	1.7	0	2.3	0	0	0	0	0	0	0	0	0	0	0	0	0	Strip cropped.
5-H-----	1.6	0	1.2	1.1	0	0	0	0	0	0	0	0	0	0	0	0	Do.
6-H-----	0	0	2.3	1.9	0	0	0	0	0	0	0	0	0	0	0	0	Wheat at upper end of area.
7-H-----	0	0	1.9	2.3	0	0	0	0	0	0	0	0	0	0	0	0	Do.
12-H-----	0	0	.6	3.1	0	0	0	0	0	0	0	0	0	0	0	0	Do.
13-H-----	1.8	0	0	1.6	0	0	0	0	0	0	0	0	0	0	0	0	Strip cropped.

<sup>1</sup> Watersheds 4-H, 8-H, 9-H, 10-H, 14-H, and 15-H, 100 percent in corn; watersheds 11-H, 16-H, and 17-H, 100 percent in oats; watersheds 1-H and 2-H, 100 percent in meadow; watersheds 18-H, and 51-H to 58-H, 100 percent in pasture.

<sup>2</sup> See pp. 3-4 for a description of general farm practices.

<sup>3</sup> Notations in this column are estimates based on the acreage of wheat harvested in 1940 and the general farm practices.



TABLE 17.—*Land use distribution in each watershed, 1940*

Watershed No. <sup>1</sup>	Crops inter-tilled <sup>2</sup>		Crops drilled or broadcast <sup>2</sup>						Meadow	Pasture	Fallow	Idle	Alfalfa	Sweet clover	Farmsteads	Roads	Remarks <sup>3</sup>
	Corn	Sorghum	Wheat	Oats	Barley	Rye	Sorghum	Millet									
3-----	Acres 131	Acres 43	Acres 57	Acres 98	Acres 6	Acres 4	Acres 15	Acres 6	Acres 8	Acres 74	Acres 23	Acres 1	Acres 0	Acres 0	Acres 12	Acres 3	23 acres fallow and 57 acres oats, both followed by winter wheat.
8-----	602	201	130	266	102	9	100	6	113	376	111	4	0	0	23	43	111 acres fallow and 89 acres oats, both followed by winter wheat.
11-----	883	482	145	452	178	18	141	16	138	691	213	9	2	0	59	63	213 acres fallow and 87 acres oats, both followed by winter wheat.
5-----	75	73	2	41	44	3	1	0	43	38	72	0	0	5	11	3	72 acres fallow followed by winter wheat.
3-H-----	1.7	0	0	2.3	0	0	0	0	0	0	0	0	0	0	0	0	Strip cropped.
5-H-----	1.9	0	0	2.0	0	0	0	0	0	0	0	0	0	0	0	0	Do.
13-H-----	1.6	0	0	1.8	0	0	0	0	0	0	0	0	0	0	0	0	Do.

<sup>1</sup> Watersheds 4-H, 8-H, 12-H, and 17-H, 100 percent in corn; watersheds 9-H, 10-H, 14-H, and 15-H, 100 percent in oats, planted to winter wheat, Sept., 1940; watersheds 6-H, 7-H, 11-H, and 16-H, 100 percent in wheat; watersheds 1-H and 2-H, 100 percent in meadow; watershed 18-H and pasture plots 51-H to 58-H, 100 percent in pasture.

<sup>2</sup> See pp. 3-4 for a description of general farm practices.

<sup>3</sup> Notations in this column listing acreages planted to winter wheat are estimates based on the general farm practices.

TABLE 18.—*Semimonthly record of the general condition of the cover and soil throughout the watershed, 1938*

Date	Area in corn			Area in oats			Area in winter wheat <sup>1</sup>			Area in barley			Area in sorghum			Area in fallow <sup>2</sup>			Area in pasture			Area in meadow		
	Cover		Soil condition <sup>3</sup>	Cover		Soil condition <sup>3</sup>	Cover		Soil condition <sup>3</sup>	Cover		Soil condition <sup>3</sup>	Cover		Soil condition <sup>3</sup>	Cover		Soil condition <sup>3</sup>	Cover		Soil condition <sup>3</sup>	Cover		Soil condition <sup>3</sup>
	De-scrip-tion	Height		Description	Height		Description	Height		Description	Height		De-scrip-tion	Height		Description	Height		De-scrip-tion	Height		Description	Height	
July 15.....	Fair...	In. 28	4	Stubble...	In. 4	4	Stubble...	In. 5	4	Stubble...	In. 3	4	Fair...	In. 12	4	None.....	In. 0	4	Poor...	In. 2	4	Good...	In. 7	4
August:																								
1.....	do	32	5	do	4	5	do	5	5	do	3	5	do	24	5	do	0	5	do	2	5	do	6	5
15.....	do	36	4	do	4	4	do	5	4	do	3	4	do	30	4	do	0	4	do	2	4	do	6	4
September:																								
1.....	Poor	36	4	do	4	4	do	5	4	do	3	4	Poor	33	4	do	0	4	do	1	4	do	1	4
15.....	do	36	4	do	4	4	do	5	4	do	3	4	do	36	4	do	0	4	do	1	4	do	1	4
October:																								
1.....	do	34	5	do	4	5	do	5	5	do	3	5	do	36	5	Wheat sprout-ing.	½	5	do	1	5	do	1	5
15.....	do	34	5	do	4	5	do	5	5	do	3	5	Cut	2	5	Thin.....	1	5	do	1	5	do	2	5
November:																								
1.....	do	32	5	do	4	5	do	5	5	do	3	5	do	2	5	do	2	5	do	1	5	do	2	5
15.....	do	32	5	do	4	5	do	5	5	do	3	5	do	2	5	do	2	5	do	1	5	do	2	5
December:																								
1.....	do	30	5	do	4	5	do	5	5	do	3	5	do	2	5	do	2	5	do	1	5	do	2	5
15.....	do	30	5	do	4	5	do	5	5	do	3	5	do	2	5	do	2	5	do	1	5	do	2	5

<sup>1</sup> Planted in fall of 1937, harvested in 1938.

<sup>2</sup> Winter wheat after Sept. 15 (wheat usually planted on fallow land).

<sup>3</sup> Numbers indicate the following soil conditions: 1. Following a series of rains when the soil-moisture deficiency is satisfied and seeps and wet spots are present. 2. Too wet for satisfactory field work but still capable of absorbing appreciable quantities

of water. 3. Sufficient moisture for fair to good plant growth. Soil capable of absorbing appreciable quantities of water. 4. Dry; crops suffering from lack of moisture. Soil capable of absorbing large amounts of water. 5. Very dry; crops withering and suffering from lack of moisture. Soil capable of absorbing very large quantities of water quickly.



TABLE 19.—Semimonthly record of the general condition of the cover and soil throughout the watershed, 1939

Date	Area in corn			Area in oats			Area in winter wheat <sup>1</sup>			Area in barley		
	Cover		Soil condition <sup>3</sup>	Cover		Soil condition <sup>3</sup>	Cover		Soil condition <sup>3</sup>	Cover		Soil condition <sup>3</sup>
	Description	Height		Description	Height		Description	Height		Description	Height	
January:		Inches			Inches			Inches			Inches	
1.....	Poor, 1938 crop.....	30	5	Stubble of 1938 crop.....	4	5	Thin.....	2	5	Stubble of 1938 crop.....	3	5
15.....	do.....	30	5	do.....	4	5	do.....	2	5	do.....	3	5
February:												
1.....	do.....	30	5	do.....	4	5	do.....	2	5	do.....	3	5
15.....	do.....	30	5	do.....	4	5	do.....	2	5	do.....	3	5
March:												
1.....	do.....	30	5	do.....	4	5	do.....	2	5	do.....	3	5
15.....	do.....	30	5	do.....	4	5	do.....	2	5	do.....	3	5
April:												
1.....	do.....	30	5	Planted.....	0	5	do.....	3	5	Planted.....	0	5
15.....	Disked.....	0	4	Sprouting.....	1	4	do.....	3	4	Sprouting.....	1	4
May:												
1.....	do.....	0	4	Fair.....	3	4	Poor.....	4	4	Fair.....	4	4
15.....	Being planted.....	0	4	do.....	6	4	do.....	7	4	do.....	5	4
June:												
1.....	Sprouting.....	1	4	Poor, heading.....	10	4	Poor, heading.....	12	4	Poor, heading.....	8	4
15.....	Fair.....	10	4	Poor, almost ripe.....	12	4	Poor, almost ripe.....	14	4	Poor, almost ripe.....	10	4
July:												
1.....	do.....	23	4	Stubble.....	4	4	Stubble.....	4	4	Stubble.....	3	4
15.....	do.....	30	4	do.....	4	4	do.....	4	4	do.....	3	4
August:												
1.....	Fair, tasseling.....	36	5	do.....	4	5	do.....	4	5	do.....	3	5
15.....	Poor, tasseled.....	36	5	do.....	4	5	do.....	4	5	do.....	3	5
September:												
1.....	Poor, denting.....	36	5	do.....	4	5	do.....	4	5	do.....	3	5
15.....	Poor, dented.....	36	5	do.....	4	5	do.....	4	5	do.....	3	5
October:												
1.....	Poor.....	36	5	do.....	4	5	do.....	4	5	do.....	3	5
15.....	do.....	36	5	do.....	4	5	do.....	4	5	do.....	3	5
November:												
1.....	do.....	30	5	do.....	4	5	do.....	4	5	do.....	3	5
15.....	do.....	30	5	do.....	4	5	do.....	4	5	do.....	3	5
December:												
1.....	do.....	30	5	do.....	4	5	do.....	4	5	do.....	3	5
15.....	do.....	30	5	do.....	4	5	do.....	4	5	do.....	3	5

Date	Area in sorghum			Area in fallow <sup>2</sup>			Area in pasture			Area in meadow		
	Cover		Soil condition <sup>3</sup>	Cover		Soil condition <sup>3</sup>	Cover		Soil condition <sup>3</sup>	Cover		Soil condition <sup>3</sup>
	Description	Height		Description	Height		Description	Height		Description	Height	
January:		Inches			Inches			Inches			Inches	
1.....	Stubble of 1938 crop.....	2	5	Grain stubble.....	4	5	Poor.....	1	5	Good.....	2	5
15.....	do.....	2	5	do.....	4	5	do.....	1	5	do.....	2	5
February:												
1.....	do.....	2	5	do.....	4	5	do.....	1	5	do.....	2	5
15.....	do.....	2	5	do.....	4	5	do.....	1	5	do.....	2	5
March:												
1.....	do.....	2	5	do.....	4	5	do.....	1	5	do.....	2	5
15.....	do.....	2	5	do.....	4	5	do.....	1	5	do.....	2	5
April:												
1.....	do.....	2	5	Plowed or listed.....	0	5	do.....	1	5	do.....	2	5
15.....	do.....	2	4	do.....	0	4	do.....	1	4	do.....	3	4
May:												
1.....	do.....	2	4	Kept cultivated.....	0	4	do.....	1	4	do.....	4	4
15.....	do.....	2	4	do.....	0	4	do.....	1	4	do.....	5	4
June:												
1.....	Being planted.....	0	4	do.....	0	4	do.....	1	4	do.....	6	4
15.....	Sprouting.....	1	4	do.....	0	4	do.....	1	4	do.....	7	4
July:												
1.....	Fair.....	5	4	do.....	0	4	do.....	1	4	do.....	7	4
15.....	do.....	12	4	do.....	0	4	do.....	1	4	do.....	6	4
August:												
1.....	do.....	24	5	do.....	0	5	do.....	1	5	do.....	6	5
15.....	Poor, heading.....	30	5	do.....	0	5	do.....	1	5	do.....	6	5
September:												
1.....	Poor, ripening.....	30	5	do.....	0	5	do.....	1	5	do.....	6	5
15.....	Poor, ripe.....	30	5	do.....	0	5	do.....	1	5	do.....	6	5
October:												
1.....	Stubble.....	2	5	Planted to wheat.....	0	5	do.....	1	5	do.....	6	5
15.....	do.....	2	5	Poor.....	1/2	5	do.....	1	5	do.....	6	5
November:												
1.....	do.....	2	5	do.....	1	5	do.....	1	5	do.....	5	5
15.....	do.....	2	5	do.....	1	5	do.....	1	5	do.....	4	5
December:												
1.....	do.....	2	5	do.....	1	5	do.....	1	5	do.....	4	5
15.....	do.....	2	5	do.....	1	5	do.....	1	5	do.....	4	5

<sup>1</sup> Planted in the fall of 1938, harvested in 1939.<sup>2</sup> Winter wheat after Sept. 15 (wheat usually planted on fallow land).<sup>3</sup> Numbers indicate the following soil conditions: 1. Following a series of rains when the soil-moisture deficiency is satisfied and seeps and wet spots are present. 2. Too wet for satisfactory field work. Soil capable of absorbing appreciable quantities of

water. 3. Sufficient moisture for fair to good plant growth. Soil capable of absorbing appreciable quantities of water. 4. Dry; crops suffering from lack of moisture. Soil capable of absorbing large amounts of water. 5. Very dry; crops withering and suffering from lack of moisture. Soil capable of absorbing very large quantities of water quickly.



TABLE 20.—Semimonthly record of the general condition of the cover and soil throughout the watershed, 1940

Date	Area in corn			Area in oats			Area in winter wheat <sup>1</sup>			Area in barley		
	Cover		Soil condition <sup>3</sup>	Cover		Soil condition <sup>3</sup>	Cover		Soil condition <sup>3</sup>	Cover		Soil condition <sup>3</sup>
	Description	Height		Description	Height		Description	Height		Description	Height	
January:		Inches			Inches			Inches			Inches	
1.....	Crop from 1939	30	5	Stubble	4	5	Poor	1	5	Stubble	3	5
15.....	do	28	5	do	4	5	do	1	5	do	3	5
February:												
1.....	do	28	5	do	4	5	do	1	5	do	3	5
15.....	do	26	5	do	4	5	do	1	5	do	3	5
March:												
1.....	do	24	5	do	4	5	do	1	5	do	3	5
15.....	do	22	5	do	4	5	do	1	5	do	3	5
April:												
1.....	do	20	5	Being planted	0	5	do	1½	5	Being planted	0	5
22.....	Disked	0	3	Good	2	3	do	2½	3	Good	2	3
May:												
1.....	do	0	3	Fair	3	3	do	5	3	Fair	3	3
16.....	Being planted	0	2	Poor	6	2	do	7	2	Poor	6	2
May 31..	Good	1	3	do	10	3	Heading	11	3	Heading	11	3
June 15..	do	5	2	Headed, poor	14	2	Headed	12	3	Headed	12	2
July:												
1.....	Fair	24	4	Harvested	4	4	Ripe	12	4	Ripe	12	4
15.....	Poor	36	5	Stubble	4	5	Harvested	4	5	Harvested	4	5
August:												
1.....	Tasseling, poor	36	5	do	4	5	Stubble	4	5	Stubble	4	5
15.....	Tasseled, poor	36	5	do	4	5	do	4	5	do	4	5
September:												
3.....	Ripening, poor	36	5	do	4	5	do	4	5	do	4	5
17.....	Ripe, poor	36	5	do	4	5	do	4	5	do	4	5
October:												
2.....	Poor	36	3	do	4	3	do	4	3	do	4	3
15.....	do	36	3	do	4	3	do	4	3	do	4	3
November:												
1.....	do	30	4	do	4	4	do	4	4	do	4	4
18.....	do	30	2	do	4	2	do	4	2	do	4	2
December:												
2.....	do	27	3	do	4	3	do	4	3	do	4	3
17.....	do	27	2	do	4	2	do	4	2	do	4	2

Date	Area in sorghum			Area fallow <sup>2</sup>			Area in pasture			Area in meadow		
	Cover		Soil condition <sup>3</sup>	Cover		Soil condition <sup>3</sup>	Cover		Soil condition <sup>3</sup>	Cover		Soil condition <sup>3</sup>
	Description	Height		Description	Height		Description	Height		Description	Height	
January:		Inches			Inches			Inches			Inches	
1.....	Stubble	3	5	Stubble	4	5	Poor	1	5	Good	2	5
15.....	do	3	5	do	4	5	do	1	5	do	2	5
February:												
1.....	do	3	5	do	4	5	do	1	5	Fair	2	5
15.....	do	3	5	do	4	5	do	1	5	do	2	5
March:												
1.....	do	3	5	do	4	5	do	1	5	do	2	5
15.....	do	3	5	do	4	5	do	1	5	do	2	5
April:												
1.....	do	3	5	do	0	5	do	1	5	do	2	5
22.....	do	3	3	Plowed or listed	0	3	Good	1	3	do	3	3
May:												
1.....	do	3	3	Cultivated	0	3	Fair	2	3	do	4	3
16.....	do	3	2	do	0	2	do	3	2	do	5	2
May 31..	Being planted	0	3	do	0	3	do	3	3	do	6	3
June 15..	Good	2	3	do	0	3	do	3	2	do	6	2
July:												
1.....	Fair	6	4	do	0	4	do	3	4	do	6	4
15.....	Poor	16	5	do	0	5	Poor	3	5	do	5	5
August:												
1.....	Heading, poor	28	5	do	0	5	do	2	5	do	5	5
15.....	do	30	5	do	0	5	do	2	5	do	5	5
September:												
3.....	Ripening, poor	30	5	do	0	5	do	1	5	do	5	5
17.....	Almost ripe, poor	36	5	do	0	5	do	1	5	do	5	5
October:												
2.....	Ripe, poor	36	3	Planted to wheat	1	3	do	1	3	do	5	3
15.....	do	36	3	Good	3	3	do	1	3	do	5	3
November:												
1.....	do	36	4	Fair	4	4	do	1	4	do	5	4
18.....	Stubble	4	2	do	4	2	do	1	2	do	5	2
December:												
2.....	do	4	3	do	4	3	do	1	3	do	5	3
17.....	do	4	2	do	4	2	do	1	2	do	5	2

<sup>1</sup> Planted in the fall of 1939, harvested in 1940.<sup>2</sup> Winter wheat after Sept. 15 (wheat usually planted on the fallowed land).<sup>3</sup> Numbers indicate the following soil conditions: 1. Following a series of rains in which the soil moisture deficiency is satisfied and seeps and wet spots are present. 2. Too wet for satisfactory field work but still capable of absorbing appreciable

quantities of water. 3. Sufficient moisture for fair to good plant growth. Soil still capable of absorbing appreciable quantities of water. 4. Dry; crops suffering from lack of soil moisture. Soil capable of absorbing large quantities of water. 5. Very dry; crops withering and suffering from lack of moisture.

TABLE 21.—Daily run-off,<sup>1</sup> for all watersheds, 1938

Watershed No.	July			August			September	
	25	26	27	16	17	18	13	14
	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Inch
3.....	T	0.003	0.061	0.076	0.108	0	0.471	0
8.....				0	.098	T	.031	T

<sup>1</sup> No run-off on days not listed.



TABLE 22.—Daily run-off<sup>1</sup> for all watersheds, 1939

Watershed No.	February					March															April					
	12	13	17	18	20	6	7	8	9	10	11	12	13	14	15	17	18	19	30	4	5	6	10	13	14	
	In. <sup>2</sup> T 0	In. <sup>2</sup> T 0	In. <sup>2</sup> T 0	In. <sup>2</sup> T 0	In. <sup>2</sup> T 0	In. 0.001 0	In. <sup>2</sup> 0.088 <sup>2</sup> 0.024	In. <sup>2</sup> 0.034 <sup>2</sup> 0.046	In. <sup>2</sup> 0.017 <sup>2</sup> 0.018	In. <sup>2</sup> 0.002 <sup>2</sup> 0.008	In. 0.012 0.004	In. <sup>2</sup> 0.022 <sup>2</sup> 0.013	In. <sup>2</sup> 0.006 <sup>2</sup> 0.007	In. <sup>2</sup> T 0	In. <sup>2</sup> T 0	In. <sup>2</sup> T 0	In. <sup>2</sup> T 0	In. <sup>2</sup> T 0	In. <sup>2</sup> T 0	In. 0.101 .104	In. T 0.005	In. 0 T	In. 0 T	In. <sup>2</sup> T 0	In. <sup>2</sup> T 0	
3																										
8																										
11																										
5																										
1-H																										
2-H																										
3-H																										
4-H																										
5-H																										
6-H																										
7-H																										
8-H																										
9-H																										
10-H																										
11-H																										
12-H																										
13-H																										
14-H																										
15-H																										
16-H																										
17-H																										
18-H																										
51-H																										
52-H																										
53-H																										
54-H																										
55-H																										
56-H																										
57-H																										
58-H																										

Watershed No.	May								June																	
	20	22	23	24	26	27	28	1	2	9	10	12	13	15	16	17	20	21	22	23	24	25	26	27	28	
	In. 0.017 0	In. 0.002 0	In. 0 T	In. 0 0	In. 0 0	In. 0 0	In. 0 0	In. 0 0	In. 0 0	In. 0 0	In. 0 0	In. 0 0	In. 0.004 0	In. 0.007 0	In. 0.209 0	In. 0 0.002	In. 0 T	In. 0.902 0	In. 0.015 0.044	In. 0.001 T	In. 0 0	In. 0 0	In. 0.015 T	In. 0.002 0.002	In. 0 T	
3																										
8																										
11																										
5																										
1-H																										
2-H																										
3-H																										
4-H																										
5-H																										
6-H																							</			



TABLE 23.—Daily run-off<sup>1</sup> for all watersheds, 1940

Watershed No.	February									
	1 <sup>2</sup>	11 <sup>2</sup>	13 <sup>2</sup>	14 <sup>2</sup>	15 <sup>2</sup>	25 <sup>2</sup>	26 <sup>2</sup>	27 <sup>2</sup>	28 <sup>2</sup>	29 <sup>2</sup>
3.....	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.
8.....	0	0	T	0	T	0	0	0	0	T
11.....	0	0	0	0	0	0	0	0	0	0
5.....	0	0	0	0	0	0	0	0	0	0
1-H.....	0	0	0	0	0	0	0	0	0	0
2-H.....	0	0	0	0	0	0	0	0	0	0
3-H.....	0	0	.004	.001	.002	0	0	.006	.007	.014
4-H.....	0	0	0	.001	.003	0	0	.004	0	.017
5-H.....	0	0	0	.002	.007	0	0	.013	0	.026
6-H.....	0	0	0	0	0	0	0	.002	0	.002
7-H.....	0	0	0	0	0	0	0	0	0	0
8-H.....	0	.024	0	.002	0	0	0	.002	0	0
9-H.....	0	0	0	0	.001	0	0	0	0	0
10-H.....	0	0	0	0	0	0	0	0	0	0
11-H.....	0	0	0	0	0	0	0	0	0	0
12-H.....	0	0	0	0	0	0	0	0	0	.013
13-H.....	0	0	0	0	0	0	0	0	0	0
14-H.....	0	0	.013	.046	.026	0	0	.008	0	.002
15-H.....	0	0	0	0	0	0	0	T	0	.003
16-H.....	0	0	0	0	0	0	0	0	0	0
17-H.....	0	0	0	0	0	0	0	0	0	0
18-H.....	0	0	0	0	.001	0	0	0	.017	.033
51-H.....	0	0	0	.065	.028	0	0	.039	0	.040
52-H.....	0	0	0	0	.002	0	.001	.008	0	.002
53-H.....	.005	0	0	.016	.022	.002	.018	.027	0	.015
54-H.....	0	0	.082	.021	0	0	0	.002	0	0
55-H.....	0	0	0	0	.014	0	.007	.014	0	.036
56-H.....	0	0	0	0	0	0	0	.034	0	.028
57-H.....	0	0	0	.008	0	0	.009	.022	0	.019
58-H.....	0	0	0	.006	.002	0	0	0	0	0

Watershed No.	March															
	1 <sup>2</sup>	2 <sup>2</sup>	3 <sup>2</sup>	4 <sup>2</sup>	5 <sup>2</sup>	6 <sup>2</sup>	7 <sup>2</sup>	8 <sup>2</sup>	9 <sup>2</sup>	10 <sup>2</sup>	15 <sup>2</sup>	16 <sup>2</sup>	17 <sup>2</sup>	18 <sup>2</sup>	19 <sup>2</sup>	20 <sup>2</sup>
3.....	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.
8.....	0	0	0	0	0	0	0	0	T	T	T	0.019	0.304	0.002	T	0
11.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5.....	T	T	T	T	T	T	T	T	T	T	T	T	T	.001	T	T
1-H.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2-H.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3-H.....	.016	0	0	.032	.061	.035	.022	.020	.032	0	.080	.188	.025	0	0	0
4-H.....	0	0	0	.028	.040	.008	.003	.013	.018	0	.077	.077	0	0	0	0
5-H.....	0	0	0	.012	.013	0	.007	0	0	0	.027	.028	0	0	0	0
6-H.....	0	0	0	.002	.008	0	.003	0	0	0	.006	.056	.022	.003	0	0
7-H.....	0	0	0	0	.027	0	0	0	0	0	.001	0	0	0	0	0
8-H.....	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0
9-H.....	0	0	0	0	0	0	.001	0	.002	0	.007	.016	0	0	0	0
10-H.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11-H.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-H.....	.003	0	.006	.037	.044	.006	.020	.011	.017	0	.018	.002	0	0	0	0
13-H.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14-H.....	.005	0	0	.013	.010	0	0	0	0	0	.015	.005	0	0	0	0
15-H.....	0	0	0	.002	.007	0	.002	0	0	0	.009	.012	0	0	0	0
16-H.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17-H.....	0	0	0	.001	.003	0	0	0	T	0	0	0	0	0	0	0
18-H.....	0	0	0	.006	.010	0	0	0	0	0	.014	.002	0	0	0	0
51-H.....	0	0	0	0	0	0	0	0	0	0	T	0	0	0	0	0
52-H.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
53-H.....	0	0	0	.011	0	0	0	0	0	0	0	0	0	0	0	0
54-H.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55-H.....	0	0	0	.019	.020	0	0	0	0	0	.024	.006	0	0	0	0
56-H.....	0	0	0	.006	0	0	0	0	0	0	.029	0	0	0	0	0
57-H.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58-H.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

<sup>1</sup> No run-off on days not listed.<sup>2</sup> Run-off due to melting snow.



TABLE 23.—Daily run-off<sup>1</sup> for all watersheds, 1940—Continued

Watershed No.	April							May					June						
	8 <sup>2</sup>	9	10	16	17	22	23	7	13	17	18	20	8	9	10	11	12	22	23
	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.
3.....	0	0	0	0	0	0	0	0	0	0.099	T	0	0.069	0.006	0	0	In.	0	In.
8.....	0	0	0	0	0	0	0	0	0	T	0	0	T	.036	T	0	0	0	0
11.....	T	T	T	0	T	T	T	0	0	.001	T	T	.002	.006	.005	.001	T	.005	T
5.....	0	0	T	T	T	T	0	T	T	T	T	T	.016	.007	0	0	0	0	0
1-H.....	0	0	0	0	0	0	0	0	0	.005	0	0	.002	0	0	0	0	0	0
2-H.....	0	0	0	0	0	0	0	0	0	.003	0	0	.003	0	0	0	0	0	0
3-H.....	0	0	0	0	0	0	0	0	0	.035	0	0	.039	0	0	0	0	0	0
4-H.....	0	0	0	0	0	0	0	0	0	.065	0	0	.328	0	0	0	0	0	0
5-H.....	0	0	0	0	0	0	0	0	0	.021	0	0	.014	0	0	0	0	0	0
6-H.....	0	0	0	0	0	0	0	0	0	.248	0	0	.176	T	0	0	0	0	0
7-H.....	0	0	0	0	0	0	0	0	0	.304	0	0	.060	0	0	0	0	0	0
8-H.....	0	0	0	0	0	0	0	0	0	.004	0	0	.001	0	0	0	0	0	0
9-H.....	0	0	0	0	0	0	0	0	0	.017	0	0	.009	0	0	0	0	0	0
10-H.....	0	0	0	0	0	0	0	0	0	.006	0	0	.018	0	0	0	0	0	0
11-H.....	0	0	0	0	0	0	0	0	0	.108	0	0	.144	0	0	0	0	0	0
12-H.....	0	0	0	0	0	0	0	0	0	T	0	0	.220	.006	0	0	0	0	0
13-H.....	0	0	0	0	0	0	0	0	0	.006	0	0	.157	.003	0	0	0	0	0
14-H.....	0	0	0	0	0	0	0	0	0	.071	0	0	.005	.001	0	0	0	0	0
15-H.....	0	0	0	0	0	0	0	0	0	.002	0	0	.041	0	0	0	0	0	0
16-H.....	0	0	0	0	0	0	0	0	0	.123	0	0	.280	T	0	0	0	0	0
17-H.....	0	0	0	0	0	0	0	0	0	.001	0	0	.013	0	0	0	0	0	0
18-H.....	0	0	0	0	0	0	0	0	0	.140	0	0	.121	0	0	0	0	0	0
51-H.....	0	0	0	0	0	0	0	0	0	.264	0	0	.246	0	0	0	0	0	0
52-H.....	0	0	0	0	0	0	0	0	0	.007	0	0	.007	0	0	0	0	0	0
53-H.....	0	0	0	0	0	0	0	0	0	.006	0	0	0	0	0	0	0	0	0
54-H.....	0	0	0	0	0	0	0	0	0	.235	0	0	.184	0	0	0	0	0	0
55-H.....	0	0	0	0	0	0	0	0	0	.009	0	0	.006	0	0	0	0	0	0
56-H.....	0	0	0	0	0	0	0	0	0	.162	.002	0	.115	0	0	0	0	0	0
57-H.....	0	0	0	0	0	0	0	0	0	.307	0	0	.275	0	0	0	0	0	0
58-H.....	0	0	0	0	0	0	0	0	0	.005	0	0	.006	0	0	0	0	0	0

Watershed No.	July	August			September			October			November					Decem-ber	Total
	27	4	12	13	22	23	24	1	2	10	8	9	16	19	25	4 <sup>2</sup>	1940
	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.
3.....	0	0	0.013	T	0	0	0.016	0	0	0	0	0	0	0	0	0	0.212
8.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.036
11.....	T	0	T	0	T	T	T	T	T	T	T	0	0	0	0	0	.021
5.....	0	0	0	0	0	0	T	0	0	0	0	T	0	0	0	0	.023
1-H.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.007
2-H.....	0	0	0	0	0	0	T	0	0	0	0	0	0	0	0	0	.006
3-H.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.619
4-H.....	0	0	0	0	0	0	.05	0	0	0	T	.042	0	0	.002	0	.780
5-H.....	0	0	0	0	0	0	.001	0	0	0	0	0	0	0	0	0	.171
6-H.....	0	0	0	0	0	0	0	0	0	0	.001	.007	0	0	0	0	.536
7-H.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.005	0	.397
8-H.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.002	0	.035
9-H.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.053
10-H.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.024
11-H.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.252
12-H.....	0	0	0	0	0	0	.005	0	0	0	0	.002	0	0	0	0	.410
13-H.....	0	0	0	0	0	0	0	0	0	0	0	.001	0	0	0	0	.167
14-H.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.220
15-H.....	0	0	0	0	0	0	T	0	0	0	0	0	0	0	0	0	.078
16-H.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.403
17-H.....	0	0	0	0	0	0	T	0	0	0	0	0	0	0	.003	0	.021
18-H.....	0	.005	0	0	0	0	.126	0	0	0	0	0	0	0	0	0	.475
51-H.....	0	0	0	0	0	.001	.155	0	0	0	0	0	0	0	.003	0	.841
52-H.....	0	.002	0	0	0	T	.004	0	0	0	0	0	0	0	.002	0	.035
53-H.....	0	0	0	0	0	0	.002	0	0	0	0	0	0	0	0	.001	.123
54-H.....	0	.003	0	0	0	0	.038	0	0	0	0	0	0	0	0	0	.565
55-H.....	0	.001	T	0	0	0	.003	0	0	0	0	0	2 <sup>2</sup> T	0	0	0	.152
56-H.....	0	.005	.002	0	0	0	.133	0	0	0	0	0	0	0	0	0	.516
57-H.....	0	.033	.012	0	0	0	.247	0	0	0	0	0	0	0	0	0	.936
58-H.....	0	.001	T	0	0	0	.002	0	0	0	0	0	0	0	0	0	.022

<sup>1</sup> No run-off on days not listed.<sup>2</sup> Run-off due to melting snow.



TABLE 24.—Run-off from watershed 3, July 16, 1938, to December 31, 1940

LOCATION: Latitude 40°15'47", longitude 98°22'31".

## PHYSICAL CHARACTERISTICS:

*Drainage area.*—0.75 square mile (481 acres).*Length of principal watercourse.*—8,920 feet (1.69 miles).*Topography.*—Undulating, well drained.*Slope.*—Average slope is 5.4 percent. 26 percent of the watershed has a slope of less than 2 percent; 28 percent, 2 to 5 percent; 21 percent, 5 to 8 percent; 15 percent, 8 to 12 percent; and 10 percent has a slope of 12 percent or more.*Erosion condition.*—There are occasional gullies on 13 percent of the watershed. Nearly half of the area has lost less than 25 percent of the topsoil and is not gullied. Over a third, part of which is gullied, has lost 25 to 50 percent of the topsoil. The remainder of the area is more severely eroded.*Soil.*—Hastings silt loam, 44 percent; Crete silt loam, 11 percent; Colby silt loam, 10 percent; Judson silt loam, 10 percent; other related types, 25 percent.

## LAND USE AND VEGETAL COVER:

*Land use distribution.*—Pasture, 15 percent; meadow, 2 percent; cultivated land, 80 percent; other uses, 3 percent.*Vegetal cover and soil condition.*—See tables 18 to 20.

## MEASUREMENTS:

*Precipitation.*—Rainfall was measured at 4 recording rain

gages, A31R, B28R, B33R, and C29R (discontinued April 20, 1939), and 4 nonrecording rain gages, B12, B22, B26, and B37 (fig. 1). Snowfall was measured by weighing and recording rain and snow gages and by cooperative observers' measurements. Snow inventory on the watershed was obtained by inspection.

*Run-off.*—Run-off was measured by current meters at high stages and by a precalibrated 1-on-3 broad-crested V-notch weir at low stages. The records of run-off are excellent. The stage discharge relation was defined by 11 current-meter measurements made throughout the range in stage. Nine of these measurements check the laboratory calibration of the 1-on-3 V-notch weir below 95 second-feet.*Changes in instrumentation during period.*—Rain gages B28R and B36R were installed April 20, 1939, and B33R, August 29, 1939. C29R and B37 were discontinued April 20, 1939, and B28R and B36R, respectively, used in their stead.

## SUMMARY OF RECORDS:

*Run-off.*—Annual run-off amount 1939, 1.56 inches; 1940, 0.212 inch. Maximum rate of run-off 1938, 0.130 inch per hour, Sept. 13; 1939, 1.147 inches per hour, June 20; 1940, 0.048 inch per hour, May 17.

Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off
1938			1938			1938			1938		
July 25 <sup>1</sup>			July 27			Aug. 16 <sup>3</sup>			Aug. 17		
<i>p. m.</i>	<i>Second-foot</i>	<i>Inches per hour</i>	<i>a. m.</i>	<i>Second-foot</i>	<i>Inches per hour</i>	<i>p. m.</i>	<i>Second-foot</i>	<i>Inches per hour</i>	<i>a. m.</i>	<i>Second-foot</i>	<i>Inches per hour</i>
4:12-----	0	0	12:20-----	15.0	0.0310	10:58-----	0	0	12:20-----	10.8	0.0223
13-----	.03	.0001	23-----	13.9	.0287	59-----	.34	.0007	25-----	7.86	.0162
14-----	.08	.0002	25-----	13.4	.0277	11:00-----	1.73	.0036	30-----	5.81	.0120
15-----	.14	.0003	30-----	13.4	.0277	01-----	4.69	.0097	35-----	4.54	.0094
16-----	.20	.0004	35-----	13.4	.0277	02-----	7.47	.0154	40-----	3.45	.0071
17-----	.29	.0006	40-----	13.6	.0281	03-----	10.6	.0219	45-----	2.76	.0057
18-----	.34	.0007	45-----	13.1	.0270	04-----	14.5	.0299	50-----	2.16	.0045
20-----	.41	.0008	50-----	12.1	.0256	05-----	17.4	.0359	55-----	1.81	.0037
22-----	.44	.0009	55-----	11.1	.0229	06-----	22.6	.0466	2:00-----	1.50	.0031
25-----	.41	.0008	1:00-----	10.1	.0208	07-----	25.8	.0532	10-----	1.10	.0023
30-----	.34	.0007	05-----	9.60	.0198	08-----	28.6	.0590	20-----	.82	.0017
35-----	.24	.0005	10-----	9.83	.0203	09-----	32.5	.0670	30-----	.59	.0012
40-----	.18	.0004	15-----	10.6	.0219	10-----	35.5	.0732	40-----	.48	.0010
45-----	.12	.0003	20-----	11.3	.0233	11-----	37.5	.0773	50-----	.38	.0008
50-----	.09	.0002	25-----	11.8	.0244	13-----	39.5	.0815	3:00-----	.29	.0006
55-----	.07	.0001	30-----	12.1	.0250	15-----	40.7	.0840	30-----	.16	.0003
5:00-----	.05	.0001	35-----	11.8	.0244	17-----	39.5	.0815	4:00-----	.09	.0002
10-----	.02	.0001	40-----	11.3	.0233	20-----	38.0	.0784	30-----	.06	.0001
20-----	.01	T	45-----	10.3	.0213	25-----	35.0	.0722	5:00-----	.04	.0001
30-----	.01	T	50-----	9.14	.0189	27-----	34.5	.0712	30-----	.02	.0001
40-----	T	T	55-----	7.66	.0158	30-----	26.0	.0742	6:00-----	.02	T
50-----	T	T	2:00-----	6.34	.0131	35-----	41.9	.0864	30-----	.01	T
6:00-----	T	T	05-----	4.99	.0103	38-----	46.1	.0950	7:00-----	.01	T
20-----	0	0	10-----	3.97	.0082	40-----	46.3	.0963	30-----	T	T
July 26 <sup>2</sup>			15-----	3.09	.0063	43-----	45.5	.0938	8:00-----	T	T
<i>p. m.</i>			20-----	2.55	.0053	45-----	43.7	.0900	30-----	0	0
11:48-----	0	0	25-----	2.07	.0043	50-----	40.1	.0826	Sept. 13 <sup>4</sup>		
50-----	.02	.0001	30-----	1.73	.0036	53-----	39.0	.0804	<i>a. m.</i>		
51-----	.24	.0005	35-----	1.43	.0030	55-----	40.1	.0826	12:03-----	0	0
52-----	.82	.0017	40-----	1.22	.0025	12:00-----	48.5	.100	04-----	.07	.0001
53-----	2.45	.0051	45-----	1.04	.0021	Aug. 17			05-----	.87	.0018
54-----	4.25	.0088	50-----	.92	.0019	<i>a. m.</i>			06-----	3.45	.0071
55-----	7.28	.0150	55-----	.68	.0014	12:02-----	52.7	.109	07-----	5.81	.0120
56-----	11.6	.0239	1:00-----	.51	.0011	05-----	55.4	.114	08-----	9.83	.0203
57-----	15.6	.0322	20-----	.41	.0008	07-----	56.8	.117	09-----	12.8	.0264
58-----	17.7	.0365	30-----	.32	.0007	10-----	57.5	.119	10-----	16.2	.0334
59-----	20.6	.0425	40-----	.26	.0005	13-----	56.8	.117	11-----	18.3	.0377
12:00-----	22.6	.0466	50-----	.22	.0004	15-----	55.4	.114	12-----	21.0	.0433
July 27			4:00-----	.20	.0004	20-----	52.7	.109	13-----	23.4	.0483
<i>a. m.</i>			5:00-----	.11	.0002	25-----	48.5	.100	14-----	25.0	.0516
12:01-----	24.6	.0507	5:00-----	.07	.0001	30-----	44.3	.0914	15-----	25.4	.0524
02-----	26.2	.0540	6:00-----	.05	.0001	35-----	39.5	.0815	17-----	26.2	.0540
03-----	25.6	.0548	30-----	.02	T	40-----	36.0	.0742	19-----	26.6	.0548
05-----	27.0	.0557	7:00-----	.01	T	45-----	32.0	.0660	20-----	27.0	.0557
06-----	27.0	.0557	8:00-----	T	T	50-----	29.0	.0598	22-----	27.8	.0590
07-----	26.6	.0548	30-----	T	T	55-----	25.4	.0524	23-----	28.6	.0590
09-----	25.4	.0524	9:00-----	T	T	1:00-----	21.8	.0450	25-----	31.5	.0650
10-----	24.6	.0507	30-----	T	T	05-----	18.6	.0384	27-----	39.5	.0815
15-----	18.3	.0377	10:00-----	0	0	10-----	15.9	.0328	30-----	56.1	.116
						15-----	13.1	.0270	32-----	60.3	.124

See footnotes at end of table, p. 41.



TABLE 24.—Run-off from watershed 3, July 16, 1938, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off
1938			1939			1939			1939		
Sept. 13			Feb. 17 <sup>5</sup>			Mar. 7			Mar. 10		
a. m.	Second-foot	Inches per hour	p. m.	Second-foot	Inches per hour	p. m.	Second-foot	Inches per hour	a. m.	Second-foot	Inches per hour
12:34	62.4	0.129	4:05	0	0	4:30	6.25	0.0129	11:30	0	0
:35	61.7	.127	:10	T	T	:45	5.88	.0121	:40	.01	T
:38	58.2	.120	:15	T	T	5:00	5.53	.0114	:50	.03	T
:40	53.3	.110	:30	T	T	:15	5.20	.0107	12:00	.04	.0001
:45	44.9	.0926	5:00	T	T	:30	4.72	.0097			
:50	40.1	.0826	:30	T	T	6:00	3.72	.0077			
:52	42.5	.0876	:35	.01	T	:30	2.97	.0061	12:30	.07	.0002
:55	50.3	.104	:40	.03	.0001	7:00	2.21	.0046	1:00	.13	.0003
:58	58.2	.120	:45	.02	T	:30	1.36	.0028	:30	.15	.0003
1:00	61.0	.126	6:00	.01	T	8:00	.81	.0017	2:00	.15	.0003
:02	62.4	.129	:15	.01	T	:30	.59	.0012	3:00	.13	.0003
:04	63.1	.130	:30	T	T	9:00	.45	.0009	4:00	.12	.0002
:05	62.4	.129	:45	T	T	:30	.26	.0005	5:00	.07	.0002
:10	59.6	.123	7:00	0	0	10:00	.13	.0003	6:00	.06	.0001
:15	54.0	.112			T	:30	.05	.0001	7:00	.04	.0001
:20	47.9	.0988	Feb. 18 <sup>5</sup>			11:00	.02	T	8:00	.03	.0001
:25	42.5	.0876				:30	.01	T	10:00	.01	T
:30	37.0	.0763	p. m.	0	0	12:00	.01	T	12:00	.01	T
:35	32.5	.0670	3:20	0	0						
:40	27.8	.0573	:25	T	T	Mar. 8			Mar. 11 <sup>6</sup>		
:45	24.2	.0497	:30	.01	T	a. m.			a. m.		
:50	20.6	.0425	4:00	T	T	1:00	.01	T	1:00	.02	T
:55	17.1	.0353	:30	T	T	5:00	0	T	2:00	.05	.0001
2:00	13.9	.0287	5:00	T	T	12:00	0	T	3:00	.15	.0003
:10	9.60	.0198	:30	T	T				4:00	.26	.0005
:20	6.34	.0131	6:00	0	0	p. m.			5:00	.28	.0006
:30	4.39	.0091	:30	0	0	12:05	.01	T	6:00	.26	.0005
:40	3.21	.0066	Feb. 20-26 <sup>5</sup>	T	T	:10	.04	.0001	7:00	.21	.0004
:50	2.45	.0051				:15	.12	.0002	8:00	.17	.0003
3:00	1.98	.0041	Mar. 6 <sup>5</sup>			:20	.21	.0004	9:00	.12	.0002
:15	1.43	.0030				:25	.33	.0007	10:00	.17	.0003
:30	1.10	.0023	p. m.	0	0	:30	.45	.0009	11:00	.17	.0003
:45	.82	.0017	5:00	0	0	:40	.76	.0016	12:00	.21	.0004
4:00	.63	.0013	:02	T	T	:50	1.15	.0024			
:15	.51	.0011	:05	.02	T	1:00	1.43	.0030	p. m.		
:30	.38	.0010	:07	.04	.0001	:30	2.02	.0042	1:00	.19	.0004
5:00	.24	.0005	:10	.10	.0002	2:00	2.41	.0050	2:00	.15	.0003
:30	.18	.0004	:15	.21	.0004	:30	2.74	.0056	:30	.15	.0003
6:00	.11	.0002	:20	.28	.0006	3:00	2.97	.0061	3:00	.17	.0003
:30	.07	.0001	:25	.33	.0007	:30	2.97	.0061	:30	.28	.0006
7:00	.05	.0001	:30	.36	.0007	4:00	2.85	.0059	4:00	.48	.0008
:30	.03	.0001	:45	.33	.0007	:30	2.74	.0056	:30	.59	.0012
8:00	.02	T	6:00	.30	.0006	5:00	2.52	.0052	5:00	.63	.0013
:30	.01	T	:15	.23	.0006	:30	2.31	.0048	6:00	.59	.0012
9:00	.01	T	:30	.26	.0005	6:00	2.02	.0042	7:00	.52	.0011
:30	T	T	:45	.21	.0004	:30	1.67	.0034	8:00	.39	.0008
10:00	T	T	7:00	.15	.0003	7:00	1.36	.0028	9:00	.30	.0006
:30	T	T	:30	.10	.0002	8:00	.67	.0014	10:00	.23	.0005
11:00	T	T	8:00	.07	.0002	9:00	.26	.0005	11:00	.17	.0003
:30	0	0	:30	.06	.0001	10:00	.07	.0002	12:00	.12	.0002
		.1711	9:00	.04	.0001	11:00	.01	T			
1939			10:00	.01	T	12:00	0	0	Mar. 12		
Feb. 12 <sup>5</sup>			11:00	T	T				a. m.		
p. m.			12:00	0	0	Mar. 9 <sup>5</sup>			1:00	.09	.0002
4:05	0	0			.0014	a. m.			:30	.07	.0002
:09	.13	.0003	Mar. 7 <sup>5</sup>			11:00	0	0	2:00	.12	.0002
:10	.15	.0003				:30	T	T	:30	.15	.0003
:12	.17	.0003	a. m.	0	0	:40	T	T	3:00	.15	.0003
:15	.15	.0003	11:00	.01	T	:50	T	T	4:00	.12	.0002
:20	.10	.0002	:05	.04	.0001	:55	.01	T	5:00	.09	.0002
:25	.07	.0002	:10	.13	.0003	12:00	.03	.0001	6:00	.05	.0001
:30	.06	.0001	:15	.23	.0005				7:00	.03	.0001
5:00	.03	.0001	:20	.33	.0007	p. m.			8:00	.03	.0001
:30	.02	T	:25	.33	.0007	12:05	.09	.0002	9:00	.02	T
:30	.01	T	:30	.45	.0010	:10	.23	.0005	10:00	.02	T
6:00	.01	T	:35	.63	.0013	:15	.36	.0007	11:00	.02	T
:15	.01	T	:40	.76	.0016	:20	.52	.0011	:30	.03	.0001
:30	T	T	:50	1.22	.0025	:25	.59	.0012	12:00	.07	.0002
:45	T	T	12:00	1.75	.0036	:35	.63	.0013			
:50	0	0			.0011	1:00	.59	.0012	p. m.		
Feb. 13 <sup>5</sup>			p. m.			2:00	.86	.0018	12:15	.05	.0001
p. m.			12:10	2.21	.0046	3:00	1.09	.0022	:20	.05	.0001
2:13	0	0	:20	2.74	.0057	4:00	1.15	.0024	:25	.05	.0001
:14	.01	T	:30	3.09	.0064	5:00	1.22	.0025	:30	.07	.0002
:15	.01	T	:40	3.59	.0074	6:00	1.03	.0021	:35	.17	.0003
:20	.02	T	:50	4.13	.0085	7:00	.76	.0016	:40	.21	.0004
:25	.02	T	1:00	4.72	.0096	8:00	.55	.0011	:45	.30	.0006
:30	.02	T	:15	5.04	.0104	9:00	.39	.0008	:50	.36	.0007
:30	.02	T	:30	5.36	.0111	10:00	.30	.0006	:55	.33	.0007
3:00	.02	T	:45	5.88	.0121	11:00	.21	.0004	1:00	.33	.0007
:30	.02	T	2:00	6.64	.0137	12:00	.15	.0003	:05	.33	.0007
4:00	.02	T	:15	7.69	.0159				:10	.33	.0007
:30	.01	T	:30	8.59	.0177	Mar. 10			:15	.33	.0007
:50	.01	T	:45	8.59	.0177	a. m.			:20	.36	.0007
5:00	.01	T	3:00	9.30	.0192	1:00	.12	.0002	:25	.36	.0007
:30	.01	T	:15	9.80	.0202	3:00	.05	.0001	:30	.39	.0008
6:00	T	T	:30	9.06	.0187	4:00	.01	T	:40	.52	.0011
7:00	T	T	:45	8.59	.0177	5:00	0	0	:45	.98	.0020
:30	0	0	4:00	7.47	.0154			.0178			
		.0002	:15	6.84	.0141						

See footnotes at end of table, p. 41.



TABLE 24.—Run-off from watershed 3, July 16, 1938, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1939				1939				1939				1939			
Mar. 12				Mar. 15				Apr. 4 <sup>7</sup>				Apr. 4			
<i>p. m.</i>	<i>Second-foot</i>	<i>Inches per hour</i>	<i>Inches</i>	<i>p. m.</i>	<i>Second-foot</i>	<i>Inches per hour</i>	<i>Inches</i>	<i>a. m.</i>	<i>Second-foot</i>	<i>Inches per hour</i>	<i>Inches</i>	<i>p. m.</i>	<i>Second-foot</i>	<i>Inches per hour</i>	<i>Inches</i>
1:50-----	1.67	0.0024	0.0029	3:26-----	0.01	T		10:18-----	0	0	0	4:20-----	5.88	0.0121	0.0929
:55-----	2.02	.0042	.0032	:27-----	.03	0.0001		:19-----	.01	T		:25-----	4.88	.0101	.0938
2:00-----	2.21	.0046	.0036	:28-----	.03	.0001		:20-----	.02	T		:30-----	4.13	.0085	.0946
:05-----	2.41	.0050	.0040	:30-----	.03	.0001		:25-----	.04	.0001		:35-----	3.46	.0071	.0952
:10-----	2.63	.0054	.0044	:45-----	.03	.0001		:30-----	.05	.0001		:40-----	2.97	.0061	.0958
:20-----	2.52	.0052	.0053	4:00-----	.03	.0001		:35-----	.04	.0001		:45-----	2.63	.0054	.0963
:30-----	2.63	.0054	.0062	:15-----	.03	.0001		:40-----	.03	.0001		:50-----	2.41	.0059	.0967
:40-----	2.52	.0052	.0071	:30-----	.03	.0001		:45-----	.03	.0001		:55-----	2.21	.0046	.0971
:50-----	2.11	.0044	.0079	5:00-----	.03	.0001		:50-----	.03	.0001		5:00-----	1.93	.0040	.0975
3:00-----	1.84	.0038	.0086	6:00-----	.02	T		:53-----	.02	T		:05-----	1.67	.0034	.0978
:15-----	1.67	.0034	.0095	7:00-----	.01	T		:55-----	.03	.0001		:10-----	1.36	.0028	.0981
:30-----	1.51	.0031	.0103	8:00-----	T	T		11:00-----	.04	.0001		:15-----	1.15	.0024	.0983
:45-----	1.36	.0028	.0111	9:00-----	T	T		:03-----	.05	.0001		:20-----	.98	.0020	.0985
4:00-----	1.22	.0025	.0117	10:00-----	0	0	0.0002	:05-----	.12	.0002		:25-----	.81	.0017	.0987
:15-----	1.15	.0024	.0123	Mar. 17 <sup>5</sup>				:07-----	.26	.0005		:30-----	.72	.0015	.0988
:30-----	1.22	.0025	.0129					:10-----	.42	.0009		:35-----	.52	.0011	.0991
:45-----	1.29	.0027	.0135					:12-----	.67	.0014		:45-----	.42	.0009	.0993
5:00-----	1.36	.0028	.0142	<i>p. m.</i>	0	0	0	:15-----	1.09	.0022	.0001	:15-----	.33	.0007	.0995
:15-----	1.29	.0027	.0149	4:07-----	0	0	0	:17-----	1.51	.0031	.0002	:30-----	.28	.0006	.0997
:30-----	1.22	.0025	.0155	:08-----	T	T	T	:20-----	1.93	.0040	.0004	:45-----	.26	.0005	.0999
:45-----	1.15	.0024	.0161	:10-----	.01	T	T	:22-----	2.31	.0048	.0005	7:00-----	.21	.0004	1.000
6:00-----	1.09	.0023	.0167	:15-----	.02	T	T	:25-----	2.85	.0059	.0008	8:00-----	.13	.0003	1.004
7:00-----	.72	.0015	.0186	:30-----	.02	T	T	:30-----	3.59	.0074	.0014	9:00-----	.10	.0002	1.006
8:00-----	.48	.0010	.0198	5:00-----	.02	T	T	:35-----	4.57	.0094	.0021	10:00-----	.07	.0002	1.008
9:00-----	.33	.0007	.0206	6:00-----	.01	T	T	:37-----	5.70	.0118	.0025	11:00-----	.06	.0001	1.010
10:00-----	.21	.0004	.0212	7:00-----	T	T	T	:40-----	6.44	.0133	.0031	12:00-----	.04	.0001	1.011
11:00-----	.13	.0003	.0216	8:00-----	T	T		:43-----	8.13	.0168	.0039	Apr. 5			
12:00-----	.07	.0002	.0218	9:00-----	0	0	T	:45-----	9.55	.0197	.0045	<i>a. m.</i>			
Mar. 13				Mar. 18 <sup>5</sup>				:48-----	8.59	.0177	.0051	2:00-----	.03	.0001	.1013
<i>a. m.</i>				<i>p. m.</i>				:50-----	7.91	.0163	.0057	4:00-----	.01	T	
1:00-----	.05	.0001	.0220	2:07-----	0	0	0	:55-----	6.25	.0129	.0069	6:00-----	T	T	
2:00-----	.03	.0001	.0221	:09-----	T	T		12:00-----	4.72	.0097	.0078	8:00-----	T	T	
3:00-----	.03	.0001	.0222	:10-----	.01	T	T	<i>p. m.</i>				10:00-----	0	0	.1013
4:00-----	.02	T		:12-----	.02	T	T	12:05-----	3.72	.0077	.0085	Apr. 13 <sup>5</sup>			
5:00-----	.01	T		:15-----	.03	.0001		:08-----	3.33	.0069	.0089	<i>p. m.</i>			
6:00-----	T	T		:30-----	.03	.0001		:10-----	3.85	.0079	.0091	1:19-----	0	0	0
:30-----	0	0	.0222	3:00-----	.03	.0001	.0001	:12-----	5.70	.0118	.0094	:20-----	.02	T	
10:18 <sup>5</sup>	0	0	0	4:00-----	.03	.0001	.0001	:13-----	7.69	.0159	.0096	:21-----	.07	.0002	
:20-----	T	T	0	5:00-----	.02	T		:15-----	10.3	.0212	.0102	:22-----	.10	.0002	
:22-----	.01	T		6:00-----	.02	T		:17-----	14.0	.0289	.0110	:24-----	.12	.0002	
:25-----	.02	T		7:00-----	.02	T		:20-----	16.0	.0330	.0126	:25-----	.10	.0002	
:27-----	.03	.0001		8:00-----	.01	T		:25-----	16.8	.0346	.0133	:30-----	.09	.0002	
:30-----	.03	.0001		9:00-----	T	T		:35-----	17.1	.0352	.0138	2:00-----	.05	.0001	.0001
11:00-----	.03	.0001		10:00-----	T	T		:40-----	16.8	.0346	.0133	3:00-----	.04	.0001	.0002
:30-----	.03	.0001		11:00-----	0	0	.0001	:45-----	16.0	.0330	.0126	4:00-----	.02	T	
12:00-----	.03	.0001		Mar. 19 <sup>5</sup>				:50-----	15.2	.0313	.0296	5:00-----	.02	T	
Mar. 14				Mar. 19 <sup>5</sup>				:55-----	14.0	.0289	.0321	6:00-----	.01	T	
<i>p. m.</i>				<i>p. m.</i>				1:00-----	12.8	.0264	.0344	9:00-----	.01	T	
12:30-----	.05	.0001	.0001	2:50-----	0	0	0	:05-----	11.7	.0241	.0365	10:00-----	T	T	
1:00-----	.07	.0002	.0001	:53-----	.01	T	T	:10-----	10.6	.0218	.0384	12:00-----	T	T	.0002
:15-----	.13	.0003		:55-----	.01	T	T	:15-----	9.55	.0197	.0401	Apr. 14			
:30-----	.17	.0003	.0002	:57-----	.02	T	T	:20-----	8.82	.0180	.0417	<i>a. m.</i>			
:45-----	.21	.0004	.0003	3:00-----	.02	T		:25-----	7.69	.0159	.0431	3:00-----	T	T	0
2:00-----	.23	.0005	.0004	4:00-----	.01	T		:30-----	6.84	.0141	.0443	6:00-----	0	0	0
:15-----	.23	.0005	.0005	5:00-----	.01	T		:35-----	6.25	.0129	.0454	May 20 <sup>5</sup>			
:30-----	.23	.0005	.0006	6:00-----	T	T		:40-----	5.70	.0118	.0464	<i>a. m.</i>			
:45-----	.23	.0005	.0007	7:00-----	0	0	T	:45-----	5.20	.0107	.0473	5:37-----	0	0	0
3:00-----	.23	.0005	.0008	8:00-----	0	0		:50-----	4.72	.0097	.0481	:38-----	.23	.0005	
:10-----	.23	.0005	.0009	9:00-----	T	T		:55-----	4.13	.0085	.0489	:39-----	.48	.0010	
:20-----	.30	.0008	.0010	10:00-----	0	0		2:00-----	3.59	.0074	.0496	:40-----	.63	.0013	
:30-----	.48	.0010	.0012	Mar. 30 <sup>5</sup>				:05-----	2.74	.0056	.0507	:42-----	.92	.0019	.0001
4:00-----	.52	.0011	.0017	<i>a. m.</i>				:10-----	2.21	.0046	.0515	:45-----	1.22	.0025	.0002
:30-----	.55	.0011	.0023	11:12-----	0	0	0	:20-----	2.21	.0046	.0515	:47-----	1.75	.0036	.0003
5:00-----	.52	.0011	.0029	:13-----	.03	.0001		:30-----	1.84	.0038	.0522	:49-----	2.41	.0050	.0004
6:00-----	.42	.0009	.0039	:14-----	.06	.0001		:35-----	1.75	.0036	.0525	:50-----	2.85	.0059	.0005
7:00-----	.30	.0006	.0047	:15-----	.07	.0002		:40-----	1.84	.0038	.0528	:53-----	3.72	.0077	.0008
8:00-----	.19	.0004	.0052	:20-----	.09	.0002		:42-----	2.21	.0046	.0529	:55-----	3.85	.0079	.0011
9:00-----	.12	.0002	.0055	:25-----	.07	.0002		:45-----	2.85	.0059	.0532	6:00-----	3.46	.0071	.0017
10:00-----	.07	.0002	.0057	:30-----	.06	.0001		:47-----	3.46	.0071	.0534	:02-----	3.46	.0071	.0019
11:00-----	.04	.0001	.0059	:35-----	.04	.0001		:50-----	4.13	.0085	.0538	:05-----	3.85	.0079	.0023
12:00-----	.03	.0001	.0060	12:00-----	.03	.0001		:55-----	5.04	.0104	.0546	:08-----	4.72	.0097	.0027
Mar. 15 <sup>5</sup>				Mar. 15 <sup>5</sup>				3:00-----	5.88	.0121	.0555	:10-----	5.04	.0104	.0030
<i>p. m.</i>				<i>p. m.</i>				:03-----	7.69	.0159	.0562	:15-----	6.06	.0125	.0040
3:24-----	0	0	0	12:10-----	.03	.0001		:05-----	9.06	.0187	.0568	:17-----	5.53	.0114	.0044
:25-----	T	T	0	:15-----	.03	.0001		:08-----	12.5	.0258	.0579	:20-----	5.53	.0114	.0050
Mar. 16 <sup>5</sup>				Mar. 16 <sup>5</sup>				:10-----	13.7	.0282	.0588	:25-----	4.57	.0094	.0059
<i>p. m.</i>				<i>p. m.</i>				:15-----	16.4	.0338	.0614	:30-----	3.72	.0077	.0066
3:24-----	0	0	0	:25-----	.07	.0002		:20-----	17.5	.0361	.0643	:35-----	2.97	.0061	.0072
:25-----	T	T	0	:30-----	.07	.0002		:25-----	18.3	.0377	.0674	:40-----	2.21	.0046	.0076
Mar. 17 <sup>5</sup>				Mar. 17 <sup>5</sup>				:30-----	18.7	.0386	.0706	:45-----	1.67	.0034	.0079
<i>p. m.</i>				<i>p. m.</i>				:40-----	17.5	.0361	.0768	:50-----	1.36	.0028	.0082
3:24-----	0	0	0	1:00-----	.03	.0001	.0001	:50-----	15.2	.0313	.0824	:55-----	1.03	.0021	.0084
:25-----	T	T	0	:30-----	.02	T		:55-----	13.4	.0276	.0848	Apr. 15			
Mar. 18 <sup>5</sup>				Mar. 18 <sup>5</sup>				4:00-----	11.7	.0241	.				

See footnotes at end of table, p. 41.



TABLE 24.—Run-off from watershed 3, July 16, 1938, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1939				1939				1939				1939			
May 20				May 22				June 15				June 20			
a. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches
7:00	0.81	0.0017	0.0086	1:00	0.01	T		4:17	41.4	0.0853	0.0400	1:46	455.	0.938	0.0708
:05	.63	.0013	.0088	2:00	T	T		:20	42.0	.0865	.0443	:47	509.	1.05	.0874
:10	.52	.0011	.0089	3:00	T	T		:22	43.2	.0890	.0472	:48	536.	1.11	.1054
:15	.42	.0009	.0090	4:00	0	0	0.0020	:25	49.5	.1020	.0520	:50	556.	1.15	.1429
:18	.39	.0008						:30	58.6	.121	.0613	:51	556.	1.15	.1620
:19	.67	.0014		June 12 <sup>10</sup>				:32	64.0	.132	.0655	:53	545.	1.12	.1999
:20	1.36	.0028						:35	68.8	.142	.0723	:55	518.	1.07	.2365
:21	2.21	.0046	.0091	p. m.				:40	71.2	.147	.0843	2:00	425.	.877	.3176
:22	3.33	.0069	.0092	10:07	0	0	0	:45	69.6	.144	.0964	:05	345.	.712	.3838
:23	3.99	.0082	.0093	:08	.26	.0005		:50	64.8	.134	.1080	:10	278.	.574	.4374
:25	4.88	.0101	.0096	:10	.28	.0006		:55	58.6	.121	.1186	:15	232.	.479	.4813
:30	5.36	.0111	.0105	:20	.33	.0007	.0001	5:00	53.0	.109	.1282	:20	204.	.421	.5188
:35	4.88	.0101	.0114	:30	.36	.0007	.0002	:05	46.8	.0965	.1368	:25	178.	.367	.5516
:40	4.13	.0085	.0122	:40	.42	.0009	.0003	:10	42.6	.0877	.1444	:30	155.	.320	.5802
:45	3.46	.0071	.0128	:45	.48	.0010	.0004	:15	38.4	.0790	.1514	:35	139.	.287	.6055
:50	2.85	.0059	.0133	:50	.59	.0012	.0005	:20	35.2	.0726	.1577	:40	124.	.256	.6282
:55	2.41	.0050	.0137	:55	.86	.0018	.0006	:25	31.7	.0654	.1635	:45	110.	.227	.6483
8:00	2.02	.0042	.0141	11:00	1.22	.0025	.0008	:30	28.2	.0582	.1687	:50	95.5	.197	.6660
:10	1.51	.0031	.0147	:05	1.43	.0030	.0010	:35	24.7	.0510	.1733	:55	81.9	.169	.6812
:20	1.09	.0022	.0151	:10	1.51	.0031	.0012	:40	21.9	.0452	.1773	3:00	72.0	.148	.6944
:30	.86	.0018	.0154	:13	1.59	.0033	.0014	:45	19.5	.0402	.1809	:05	63.2	.130	.7060
:40	.63	.0013	.0157	:15	1.51	.0031	.0015	:50	17.1	.0352	.1840	:10	55.8	.115	.7162
:50	.52	.0011	.0159	:20	1.51	.0031	.0018	:55	14.9	.0307	.1868	:15	50.2	.104	.7252
9:00	.39	.0008	.0161	:30	1.29	.0027	.0023	6:00	13.4	.0276	.1892	:20	45.6	.090	.7334
:10	.30	.0006	.0162	:40	1.15	.0024	.0027	:05	11.7	.0241	.1914	:25	40.8	.0841	.7410
:20	.26	.0005	.0163	:50	1.43	.0030	.0031	:10	10.3	.0212	.1933	:30	37.2	.0767	.7477
:30	.19	.0004	.0164	12:00	2.02	.0042	.0037	:15	8.82	.0180	.1949	:35	34.2	.0705	.7538
:40	.15	.0003	.0165					:20	7.47	.0154	.1963	:40	31.2	.0644	.7594
:50	.13	.0003		June 13				:25	6.44	.0133	.1975	:45	28.2	.0582	.7645
10:00	.10	.0002	.0166	a. m.				:30	5.70	.0118	.1985	:50	25.7	.0530	.7691
:10	.07	.0002		12:10	2.21	.0046	.0007	:35	5.04	.0104	.1994	4:00	21.5	.0444	.7772
:20	.06	.0002		:20	2.21	.0046	.0015	:40	4.42	.0091	.2002	:10	17.5	.0361	.7839
:30	.04	.0001		:30	2.02	.0042	.0022	:45	3.85	.0079	.2009	:20	14.6	.0301	.7894
11:00	.03	.0001		:45	1.67	.0034	.0032	:50	3.46	.0071	.2015	:25	13.7	.0282	.7918
:30	.03	.0001		1:00	1.26	.0028	.0040	7:00	2.97	.0061	.2026	:28	13.7	.0282	.7932
12:00	.02	T		:15	1.04	.0022	.0046	:10	2.41	.0050	.2035	:30	14.3	.0295	.7942
				:30	.86	.0018	.0051	:20	2.11	.0044	.2043	:32	14.3	.0295	.7952
p. m.				:45	.67	.0014	.0055	:30	1.84	.0038	.2050	:35	20.3	.0418	.7970
12:30	.02	T		:50	.55	.0011	.0058	:45	1.51	.0031	.2058	:36	22.3	.0460	.7977
1:00	.01	T		2:00	.42	.0009	.0060	8:00	1.22	.0025	.2065	:38	23.5	.0485	.7993
:30	.01	T		:15	.33	.0007	.0062	:15	.92	.0019	.2071	:40	24.3	.0501	.8009
2:00	T	T		:30	.26	.0005	.0064	:30	.76	.0016	.2075	:45	32.2	.0664	.8057
:30	T	T		:45	.19	.0004	.0065	:45	.63	.0013	.2079	:47	33.7	.0695	.8080
3:00	0	0	.0168	3:00	.15	.0003	.0066	9:00	.52	.0011	.2082	:48	33.7	.0695	.8092
				:15	.12	.0002		:15	.42	.0009	.2084	:50	32.7	.0674	.8115
May 22 <sup>9</sup>				:30	.09	.0002		:30	.33	.0007	.2086	:55	28.7	.0592	.8168
a. m.				:45	.06	.0001		:45	.26	.0005	.2088	5:00	24.3	.0501	.8214
3:13	0	0	C	4:00	.04	.0001		10:00	.21	.0004	.2089	:05	20.3	.0418	.8252
:14	.01			:30	.03	.0001		:15	.17	.0003	.2090	:10	17.1	.0352	.8284
:15	.06	.0001		5:00	.02	T		:30	.13	.0003	.2091	:15	15.2	.0313	.8312
:16	.19	.0004		:30	.01	T		:45	.10	.0002	.2092	:18	14.9	.0307	.8328
:17	.23	.0005		6:00	.01	T		11:00	.09	.0002	.2091	:20	14.9	.0307	.8338
:20	.24	.0005		:30	.01	T		12:00	.05	.0001	.2093	:25	16.4	.0338	.8365
:22	.28	.0006		7:00	T	T						:30	19.1	.0394	.8395
:25	.26	.0005		:30	T	T		p. m.				:35	21.1	.0435	.8429
:30	.23	.0005		8:00	T	T		1:00	.03	.0001	.2094	:40	21.9	.0452	.8466
:40	.21	.0004	.0001	:30	0	0	.0068	2:00	.02	T		:45	21.5	.0444	.8503
:50	.21	.0004	.0002					3:00	.01	T		6:00	19.5	.0402	.8609
4:00	.23	.0005	.0003	June 15 <sup>11</sup>				4:00	T	T		:15	17.1	.0352	.8703
:10	.26	.0005	.0004	a. m.				5:00	T	T		:30	14.0	.0289	.8783
:20	.28	.0006	.0005	3:27	0	0	0	6:00	0	0	.2094	:45	10.3	.0212	.8845
:30	.23	.0005	.0006	:28	.36	.0007						7:00	6.64	.0137	.8889
:40	.19	.0004	.0007	:29	.45	.0009		June 20 <sup>12</sup>				:10	5.04	.0104	.8909
:50	.15	.0003	.0008	:30	.55	.0011		p. m.				:20	3.99	.0082	.8925
5:00	.12	.0002		:31	.81	.0017		1:19	0	0	0	:30	3.09	.0064	.8937
:15	.09	.0002		:32	1.22	.0025		:20	.01	T		:40	2.74	.0056	.8947
:20	.12	.0002		:34	1.93	.0040	.0001	:21	.13	.0003		:50	2.52	.0052	.8956
:22	.15	.0003		:35	2.31	.0048	.0002	:22	.33	.0007		8:00	2.31	.0048	.8964
:25	.23	.0005		:36	2.74	.0056	.0003	:23	.45	.0009		:10	1.84	.0038	.8971
:30	.30	.0006		:37	3.21	.0066	.0004	:24	.48	.001		:20	1.51	.0031	.8977
:35	.36	.0007		:38	2.85	.0079	.0005	:25	.59	.0012		:30	1.22	.0025	.8982
:40	.39	.0008	.0009	:38	4.27	.0088	.0006	:26	1.84	.0038	.0002	:45	.92	.0019	.8988
:45	.39	.0008	.0010	:39	4.72	.0097	.0008	:27	7.69	.0159	.0007	:50	.76	.0016	.8992
:50	.36	.0007	.0011	:40	5.36	.0111	.0010	:28	20.7	.0427	.0007	:15	.63	.0013	.8996
6:00	.33	.0007	.0012	:41	6.25	.0129	.0012	:29	26.7	.055	.0015	:30	.55	.0011	.8999
:15	.28	.0006	.0014	:42	7.47	.0154	.0014	:30	34.7	.0715	.0026	:45	.52	.0011	.9002
:30	.23	.0005	.0016	:43	11.4	.0235	.0017	:31	45.0	.0927	.0040	10:00	.45	.0009	.9004
:45	.19	.0004	.0017	:44	16.0	.0330	.0022	:32	55.1	.114	.0057	:15	.36	.0007	.9006
7:00	.15	.0003	.0018	:45	22.3	.0460	.0029	:33	61.6	.127	.0077	:30	.30	.0006	.9008
:15	.12	.0002		:46	31.7	.0654	.0038	:34	66.4	.137	.0099	:45	.26	.0005	.9010
:30	.09	.0002		:47	37.8	.0780	.0050	:35	71.2	.147	.0123	11:00	.23	.0005	.9011
:45	.07	.0002		:48	40.8	.0841	.0064	:37	81.9	.169	.0176	:15	.19	.0004	.9012
8:00	.06	.0001		:50	42.0	.0865	.0092	:40	92.5	.191	.0266	:30	.17	.0003	.9013
9:00	.04	.0001	.0019	:55	35.2	.0726	.0158	:41	99.7	.206	.0299	12:00	.15	.0003	.9015
10:00	.03	.0001	.0020	4:00	28.7	.0592	.0213	:42	113.	.233	.0335				
11:00	.02	T		:05	26.7	.0550	.0261	:43	178.	.367	.0385	June 21			
12:00	.01	T		:10	33.7	.0695	.0313	:44	246.	.507	.0458	a. m.			
				:15	40.2	.0830	.0372	:45	375.	.774	.0565	1:00	.12	.0002	.9017

See footnotes at end of table, p. 41.



TABLE 24.—Run-off from watershed 3, July 16, 1938, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1939				1939				1939				1939			
June 21				June 25				July 1				Aug. 7			
a. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches
5:00-----	0.09	0.0002	0.9025	1:50-----	5.88	0.0121	0.0032	8:30-----	1.59	0.0033	0.0247	6:00-----	T	T	
9:00-----	.06	.0001	.9033	:55-----	4.72	.0097	.0041	:40-----	1.22	.0025	.0252	:05-----	T	T	
				2:00-----	3.59	.0074	.0048	:50-----	.98	.0020	.0256	:10-----	T	T	
p. m.				:05-----	2.63	.0054	.0053	9:00-----	.81	.0017	.0159	:15-----	T	T	
1:00-----	.04	.0001	.9037	:10-----	2.02	.0042	.0057	:10-----	.63	.0013	.0261	:19-----	T	T	
5:00-----	.03	.0001	.9041	:15-----	1.43	.0030	.0060	:20-----	.48	.0010	.0263	:20-----	T	T	
7:00-----	.02	T		:20-----	1.09	.0022	.0062	:30-----	.36	.0007	.0264	:23-----	.01	T	
:30-----	.02	T	T	:25-----	.98	.0020	.0064	:40-----	.28	.0006	.0265	:25-----	.01	T	
:45-----	.02	T		:30-----	.98	.0020	.0066	:50-----	.23	.0005	.0266	:30-----	.01	T	
:50-----	.02	T		:45-----	.92	.0019	.0071	10:00-----	.21	.0004	.0267	:40-----	T	T	
:51-----	.02	T		3:00-----	.98	.0020	.0076	:30-----	.17	.0003	.0269	:50-----	T	T	
:52-----	.04	.0001		:30-----	.92	.0019	.0086	11:00-----	.15	.0003	.0271	7:00-----	T	T	
:53-----	.12	.0002		4:00-----	.86	.0018	.0095	:30-----	.13	.0003	.0273	:15-----	T	T	
:54-----	.17	.0003		5:00-----	.72	.0015	.0111	12:00-----	.12	.0002	.0274	:20-----	T	T	
:55-----	.23	.0005		6:00-----	.52	.0011	.0124					:25-----	0.01	T	
:56-----	.30	.0006		7:00-----	.33	.0007	.0133	p. m.				:28-----	.02	T	
:57-----	.48	.0010		8:00-----	.23	.0005	.0139	1:00-----	.09	.0002	.0276	:28-----	.04	0.0001	
:58-----	.63	.0013		9:00-----	.17	.0003	.0143	2:00-----	.06	.0001	.0278	:30-----	.05	.0001	
:59-----	1.36	.0028		10:00-----	.12	.0002	.0145	4:00-----	.05	.0001	.0280	:35-----	.07	.0002	
8:00-----	3.33	.0069	.0001	11:00-----	.07	.0002	.0147	6:00-----	.03	.0001	.0282	:40-----	.09	.0002	
:01-----	6.06	.0125	.0003	12:00-----	.05	.0001	.0149	8:00-----	.02	T		:45-----	.09	.0002	
:02-----	7.05	.0145	.0005					12:00-----	.01	T		:50-----	.10	.0002	
:03-----	7.69	.0159	.0008	p. m.								8:00-----	.09	.0002	
:05-----	7.91	.0163	.0013	1:00-----	.03	.0001	.0150	July 2				:15-----	.07	.0002	
:10-----	7.69	.0159	.0026	:30-----	.01	T		a. m.				:30-----	.05	.0001	
:15-----	6.25	.0129	.0036	2:00-----	T	T		4:00-----	T	T		:45-----	.04	.0001	
:17-----	5.70	.0118	.0042	4:00-----	T	T		8:00-----	T	T		9:00-----	.03	.0001	
:20-----	4.72	.0097	.0047	9:00-----	T	T		12:00-----	T	T		:30-----	.02	T	
:22-----	4.13	.0085	.0050	12:00-----	T	T						10:00-----	.01	T	
:25-----	3.59	.0074	.0054	June 26				p. m.				:30-----	.01	T	
:30-----	2.74	.0056	.0059	a. m.				4:00-----	0	0	.0282	:30-----	.01	T	
:35-----	2.21	.0046	.0063	3:00-----	T	T						11:00-----	T	T	
:40-----	1.93	.0040	.0067	6:00-----	0	0	.0150	Aug. 1 <sup>15</sup>				12:00-----	T	T	
:45-----	1.75	.0036	.0070					p. m.							
:50-----	1.67	.0034	.0073	July 1 <sup>14</sup>				7:54-----	0	0	0	Aug. 8			
:55-----	1.59	.0033	.0076	a. m.				:55-----	.03	.0001		a. m.			
9:00-----	1.59	.0033	.0079	4:50-----	0	0	0	:56-----	.04	.0001		1:00-----	T	T	
:10-----	1.67	.0034	.0085	:54-----	T	T		:57-----	.05	.0001		2:00-----	T	T	
:20-----	1.84	.0038	.0091	:55-----	.05	.0001		:59-----	.05	.0001		4:00-----	0	0	.0002
:30-----	1.67	.0034	.0097	:56-----	.05	.0001	.0001	8:00-----	.05	.0001		Aug. 11 <sup>17</sup>			
:45-----	1.22	.0025	.0105	:57-----	.05	.0001	.0003	:02-----	.07	.0002		p. m.			
10:00-----	.98	.0020	.0111	:58-----	.05	.0001	.0005	:05-----	.05	.0001		9:54-----	0	0	0
:15-----	.76	.0016	.0115	5:00-----	5.04	.0104	.0009	:10-----	.03	.0001		:55-----	.06	.0001	
:30-----	.59	.0012	.0119	:03-----	4.13	.0085	.0014	:15-----	.01	T		:56-----	.12	.0002	
:45-----	.42	.0009	.0121	:05-----	3.85	.0079	.0017	:20-----	.01	T		:57-----	.30	.0006	
11:00-----	.30	.0006	.0123	:10-----	2.85	.0059	.0023	:21-----	.01	T		:58-----	.55	.0011	
:30-----	.21	.0004	.0125	:12-----	2.41	.0050	.0025	:22-----	.01	T		:59-----	.86	.0018	
12:00-----	.17	.0003	.0127	:15-----	1.93	.0040	.0027	:25-----	.02	T		10:00-----	1.75	.0036	
June 22				:20-----	1.59	.0033	.0030	:28-----	.02	T		:01-----	3.09	.0064	
a. m.				:25-----	1.22	.0025	.0032	:30-----	.02	T		:02-----	4.42	.0091	.0002
12:30-----	.13	.0003	.0129	:30-----	.92	.0019	.0034	:35-----	.02	T		:03-----	4.72	.0097	.0004
1:00-----	.10	.0002	.0130	:35-----	.67	.0014	.0035	:40-----	.01	T		:04-----	5.70	.0118	.0006
:30-----	.07	.0002	.0131	:40-----	.55	.0011	.0036	:45-----	.01	T		:05-----	8.59	.0177	.0007
2:00-----	.05	.0001	.0132	:45-----	.48	.0010	.0037	:50-----	.01	T		:06-----	12.8	.0264	.0011
:30-----	.03	.0001		:50-----	.45	.0009	.0038	9:00-----	T	T		:07-----	19.9	.0410	.0017
3:00-----	.02	T		:55-----	.42	.0009	.0039	:30-----	T	T		:08-----	28.7	.0592	.0025
:30-----	.01	T		6:00-----	.42	.0009	.0040	10:00-----	T	T		:09-----	36.7	.0756	.0036
4:00-----	.01	T		:10-----	.45	.0009	.0042	12:00-----	T	T		:10-----	41.4	.0853	.0049
5:00-----	T	T		:15-----	.45	.0009	.0043	Aug. 2				:11-----	44.4	.0915	.0064
8:00-----	T	T		:17-----	.52	.0011	.0043	a. m.				:12-----	45.6	.0940	.0079
11:00-----	T	T		:20-----	.76	.0016	.0044	2:00-----	T	T		:15-----	43.8	.0904	.0125
				:21-----	.98	.0020		4:00-----	T	T		:17-----	39.0	.0804	.0153
p. m.				:22-----	1.22	.0025		6:00-----	0	0	T	:20-----	31.7	.0654	.0189
1:00-----	T	T		:23-----	1.67	.0034		Aug. 7 <sup>16</sup>				:23-----	25.7	.0530	.0219
3:00-----	0	0	.0132	:24-----	2.02	.0042	.0045	p. m.				:25-----	21.5	.0444	.0235
June 25 <sup>13</sup>				:25-----	2.74	.0056	.0046	4:45-----	0	0	0	:27-----	18.7	.0386	.0249
a. m.				:26-----	3.46	.0071	.0047	:46-----	T	T		:30-----	15.6	.0322	.0267
1:22-----	0	0	0	:27-----	4.27	.0088	.0048	:47-----	T	T		:32-----	14.0	.0289	.0277
:23-----	.01	T		:28-----	5.04	.0104	.0050	:48-----	T	T		:35-----	12.0	.0248	.0290
:24-----	.02	T		:30-----	5.88	.0121	.0054	:49-----	T	T		:40-----	9.80	.0202	.0309
:25-----	.03	.0001		:35-----	6.84	.0141	.0065	:50-----	T	T		:45-----	7.91	.0163	.0324
:26-----	.07	.0002		:40-----	7.69	.0159	.0077	:55-----	T	T		:50-----	7.05	.0145	.0337
:27-----	.13	.0003		:45-----	8.36	.0172	.0091	:55-----	T	T		:55-----	6.84	.0141	.0349
:28-----	.17	.0003		:50-----	8.59	.0177	.0105	5:00-----	T	T		11:00-----	6.64	.0137	.0361
:29-----	.26	.0005		:55-----	8.13	.0168	.0119	:05-----	T	T		:05-----	6.84	.0141	.0373
:30-----	.39	.0008		7:00-----	7.47	.0154	.0132	:10-----	T	T		:10-----	7.05	.0145	.0385
:31-----	.52	.0011		:05-----	6.84	.0141	.0144	:20-----	T	T		:20-----	7.26	.0150	.0410
:32-----	.55	.0011		:10-----	6.06	.0125	.0155	:27-----	T	T		:30-----	7.26	.0150	.0435
:33-----	1.09	.0022		:15-----	5.53	.0114	.0165	:28-----	T	T		:35-----	8.13	.0168	.0448
:34-----	2.02	.0042	.0001	:20-----	5.20	.0107	.0174	:29-----	T	T		:40-----	9.30	.0192	.0463
:35-----	3.59	.0074	.0002	:25-----	4.72	.0097	.0182	:30-----	.01	T		:45-----	10.6	.0218	.0480
:36-----	4.57	.0094	.0003	:30-----	4.27	.0088	.0190	:31-----	.03	.0001		:50-----	11.4	.0235	.0499
:37-----	5.20	.0107	.0005	:40-----	3.72	.0077	.0204	:32-----	.03	.0001		:55-----	11.7	.0241	.0519
:40-----	6.06	.0125	.0011	:50-----	3.09	.0064	.0216	:35-----	.04	.0001		12:00-----	11.4	.0235	.0539
:42-----	6.44	.0133	.0015	8:00-----	2.63	.0054	.0226	:37-----	.04	.0001		Aug. 12			
:45-----	6.25	.0129	.0022	:10-----	2.21	.0046	.0234	:40-----	.03	.0001		a. m.			
:48-----	6.06	.0125	.0028	:20-----	1.84	.0038	.0241	:45-----	.02	T		12:05-----	11.1	.0229	.0558
								:50-----	.01	T		:10-----	10.6	.0218	.0577

See footnotes at end of table, p. 41.



TABLE 24.—Run-off from watershed 3, July 16, 1938, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off			Accumulated run-off	Date and time	Instantaneous rate of run-off			Accumulated run-off	Date and time	Instantaneous rate of run-off			Accumulated run-off	Date and time	Instantaneous rate of run-off			Accumulated run-off
1939					1940					1940					1940				
Aug. 12					Mar. 10					Mar. 16					Mar. 17				
a. m.	Second-foot	Inches per hour	Inches		a. m.	Second-foot	Inches per hour	Inches		p. m.	Second-foot	Inches per hour	Inches		p. m.	Second-foot	Inches per hour	Inches	
12:20	9.55	0.0197	0.0612		12:30	T	T			2:30	0.23	0.0005	0.0019		7:30	0.27	0.0006	0.0011	
:30	8.36	.0172	.0643		1:00	T	T			3:00	.23	.0005	.0021		8:00	.26	.0005	.0014	
:40	7.05	.0145	.0669		:30	0.01	T			:05	.23	.0005			:30	.24	.0005	.0016	
:50	5.70	.0118	.0691		2:00	.01	T			:10	.23	.0005			9:00	.20	.0004	.0018	
1:00	4.72	.0097	.0709		:30	.01	T			:15	.30	.0006			:30	.19	.0004	.0020	
:10	3.85	.0079	.0724		:45	.03	0.0001			:17	.42	.0009			10:00	.18	.0004	.0022	
:20	3.21	.0066	.0736		3:00	.03	.0001			:20	.67	.0014	.0022		11:00	.17	.0003	.0026	
:30	2.63	.0054	.0746		:15	.03	.0001			:21	.86	.0018			12:00	.15	.0003	.0029	
:40	2.11	.0044	.0754		:30	.02	T			:22	1.03	.0021			Mar. 18				
:50	1.67	.0034	.0760		5:45	.02	T			:23	1.15	.0024			a. m.				
2:00	1.29	.0027	.0765		6:00	.01	T			:24	1.29	.0027			1:00	.14	.0003	.0032	
:10	1.03	.0021	.0769		11:00	.01	T			:25	1.36	.0028	.0022		2:00	.12	.0003	.0035	
:20	.86	.0018	.0772		:05	.02	T			:30	1.75	.0036	.0025		3:00	.12	.0002	.0037	
:30	.67	.0014	.0775		:10	.04	.0001			:35	1.93	.0040	.0028		4:00	.10	.0002	.0039	
:45	.45	.0009	.0781		:15	.06	.0001			:40	2.16	.0044	.0032		5:00	.07	.0002	.0041	
:30	.30	.0006	.0785		:20	.07	.0002			:45	2.21	.0046	.0036		6:00	.05	.0002	.0043	
4:00	.25	.0005	.0788		:25	.09	.0002			:50	2.31	.0048	.0040		7:00	.03	.0001	.0044	
:30	.21	.0004	.0790		:30	.09	.0002			:55	2.46	.0051	.0044		8:00	.02	T		
5:00	.17	.0003	.0792		:45	.10	.0002			4:00	2.52	.0052	.0048		9:00	.01	T		
:30	.13	.0003	.0794		12:00	.10	.0002			:05	2.63	.0054	.0052		10:00	T	T		
6:00	.10	.0002	.0795		p. m.					:10	2.74	.0056	.0057		12:00	T	T		
:30	.07	.0002	.0796		12:15	.10	.0002			:15	2.68	.0055	.0062		Mar. 18 <sup>s</sup>				
7:00	.05	.0001	.0797		:30	.09	.0002			:20	2.46	.0051	.0066		p. m.				
:30	.03	.0001			:45	.09	.0002			:25	2.26	.0047	.0070		1:00	0	0	.0044	
8:00	.02	T			1:00	.08	.0002			:30	2.02	.0042	.0074		p. m.				
:30	.01	T			:15	.06	.0001			:35	1.84	.0038	.0077		8:10	0	0		
9:00	T	T			:20	.05	.0001			:40	1.67	.0034	.0080		:11	.01	T		
:30	T	T			:25	.03	.0001			:45	1.59	.0033	.0083		:12	.03	.0001		
10:00	0	0	.0797		:30	.02	T			:50	1.51	.0031	.0086		:13	.05	.0001		
Aug. 15 <sup>18</sup>					:35	.01	T			:55	1.43	.0029	.0088		:14	.06	.0001		
a. m.					:40	.01	T			5:00	1.40	.0029	.0090		:15	.06	.0001		
12:49	0	0	0		:45	.01	T			:15	1.32	.0027	.0097		:20	.08	.0002		
:50	T	T			2:15	T	T			:30	1.26	.0026	.0103		:25	.09	.0002		
:55	T	T			5:00	T	T			6:00	1.15	.0024	.0115		:30	.09	.0002		
1:00	T	T			:15	.01	T			:30	1.06	.0022	.0127		:35	.09	.0002		
:30	T	T			6:00	.01	T			:30	.98	.0020	.0137		:40	.12	.0002		
2:00	T	T			:30	T	T			8:00	.86	.0018	.0147		:45	.12	.0002		
3:00	T	T			8:37	0	0	0.0005		:30	.76	.0016	.0155		9:00	.12	.0002		
5:00	T	T			Mar. 15 <sup>s</sup>					:30	.63	.0013	.0162		:30	.12	.0002		
7:00	0	0	T		p. m.					10:00	.55	.0011	.0168		:35	.09	.0002		
1940					3:40	0	0	0		:30	.48	.0010	.0173		:40	.09	.0002		
Feb. 13 <sup>s</sup>					:41	T	T			:35	.42	.0009	.0178		:45	.08	.0002	.0001	
p. m.					4:50	T	T			11:00	.35	.0007	.0182		9:00	.12	.0002	.0002	
1:25	0	0	0		:52	.01	T			12:00	.30	.0006	.0185		10:00	.09	.0002	.0003	
:26	T	T			:57	.01	T			Mar. 17					:30	.07	.0002	.0004	
10:30	T	T			:59	.02	T			a. m.					11:00	.06	.0001		
:40	0	0	T		5:00	.02	T			1:00	.13	.0003	.0194		:30	.05	.0001		
Feb. 15 <sup>s</sup>					:05	.03	.0001			2:00	.10	.0002	.0196		12:00	.03	.0001		
p. m.					:10	.03	.0001			3:00	.06	.0001	.0198		Mar. 19				
12:16	0	0	0		:15	.02	T			4:00	.03	.0001	.0199		a. m.				
:17	T	T			7:30	.02	T			5:00	.02	T			12:30	.02	T		
10:30	T	T			8:00	.01	T			6:00	.01	T			1:00	.02	T		
11:00	0	0	T		9:35	.02	T			8:00	T	T			2:00	.01	T		
Feb. 29 <sup>s</sup>					:40	.03	.0001			9:00	0	0	.0199		3:00	T	T		
p. m.					:45	.04	.0001			Mar. 17 <sup>s</sup>					11:00	T	T		
12:29	0	0	0		10:00	.07	.0002			p. m.					11:30	0	0	.0004	
:30	T	T			:15	.10	.0002			1:10	0	0	0		a. m.				
9:30	T	T			:30	.12	.0002			:11	T	T			2:21	0	0	0	
10:00	0	0	T		:45	.13	.0003	.0001		:18	T	T			:22	.06	.0001		
Mar. 9 <sup>s</sup>					11:00	.13	.0003	.0002		:19	.01	T			:23	.13	.0003		
p. m.					:30	.12	.0002			3:25	.01	T			:24	.15	.0003		
2:15	0	0	0		:45	.12	.0002			:30	.02	T			:25	.17	.0003		
:16	T	T			12:00	.11	.0002			4:00	.02	T			:30	.17	.0003		
:18	T	T			Mar. 16					5:00	.02	T			:32	.17	.0003		
:19	.01	T			a. m.					:15	.01	T			:33	1.59	.0033		
:20	.02	T			12:30	.09	.0002	.0003		:20	.01	T			:34	5.70	.0118	.0001	
:21	.03	.0001			1:00	.07	.0002	.0004		:22	.01	T			:35	9.06	.0187	.0004	
:22	.04	.0001			:30	.06	.0001	.0005		:23	.02	T			:36	12.0	.0247	.0008	
:23	.05	.0001			2:00	.05	.0001			:24	.03	.0001			:37	13.4	.0276	.0012	
:25	.04	.0001			3:00	.04	.0001	.0006		:25	.06	.0001			:38	14.3	.0295	.0017	
:29	.03	.0001			4:00	.04	.0001	.0007		:26	.09	.0002			:39	15.2	.0313	.0022	
:30	.02	T			5:00	.05	.0001	.0008		:27	.12	.0002			:40	15.4	.0318	.0027	
:35	.02	T			12:00	.05	.0001	.0015		:28	.14	.0003			:41	15.6	.0322	.0032	
:40	.02	T			p. m.					:29	.15	.0003			:42	15.4	.0318	.0037	
:45	.01	T			12:30	.05	.0001			:30	.19	.0004			:43	15.2	.0313	.0042	
:50	.01	T			:40	.05	.0001			:35	.23	.0005			:44	14.9	.0307	.0047	
:55	.01	T			:50	.07	.0002			:40	.26	.0005			:45	14.4	.0297	.0052	
3:00	.01	T			1:00	.09	.0002			:45	.26	.0005			:46	14.0	.0289	.0057	
:10	T</																		



TABLE 24.—Run-off from watershed 3, July 16, 1938, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1940				1940				1940				1940			
May 17				May 17				May 18				June 8			
a. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches
2:55	10.3	0.0212	0.0034	4:24	7.26	0.0150	0.0395	5:53	0.14	0.0003		9:23	12.5	0.0258	0.0081
:56	9.80	0.0202	0.0097	:25	7.36	0.0152	0.0398	:54	.15	.0003		:24	12.5	0.0258	0.0085
:57	9.30	0.0192	0.0100	:30	7.69	0.0159	0.0411	:55	.15	.0003		:25	12.6	0.0260	0.0089
:58	9.06	0.0187	0.0103	:35	7.58	0.0156	0.0424	6:00	.15	.0003		:26	12.8	0.0264	0.0093
:59	8.82	0.0182	0.0106	:40	7.47	0.0154	0.0437	:05	.15	.0003		:27	12.8	0.0264	0.0097
3:00	8.36	0.0172	0.0109	:45	7.36	0.0152	0.0450	:10	.15	.0003		:28	13.1	0.0270	0.0101
:01	8.13	0.0168	0.0112	:50	7.36	0.0152	0.0463	:15	.14	.0003		:29	13.1	0.0270	0.0105
:02	7.91	0.0163	0.0115	:55	7.47	0.0154	0.0476	:20	.14	.0003		:30	13.1	0.0270	0.0109
:03	7.69	0.0159	0.0118	5:00	7.80	0.0161	0.0489	:25	.12	.0002		:32	13.1	0.0270	0.0118
:04	7.47	0.0154	0.0121	:02	7.91	0.0163	0.0494	:30	.11	.0002		:35	13.4	0.0276	0.0132
:05	7.26	0.0150	0.0124	:05	8.36	0.0172	0.0502	:45	.09	.0002		:40	14.0	0.0289	0.0156
:06	7.05	0.0145	0.0126	:10	9.55	0.0197	0.0517	7:00	.07	.0002		:45	15.2	0.0313	0.0181
:07	6.84	0.0141	0.0128	:15	10.9	0.0225	0.0535	:15	.06	.0001		:47	16.0	0.0330	0.0192
:08	6.44	0.0133	0.0130	:20	12.0	0.0247	0.0555	:30	.05	.0001		:48	16.2	0.0334	0.0197
:09	6.25	0.0129	0.0132	:25	12.8	0.0264	0.0576	:45	.03	.0001		:49	16.6	0.0342	0.0203
:10	6.06	0.0125	0.0134	:26	13.2	0.0272	0.0580	8:00	.03	.0001		:50	16.8	0.0346	0.0209
:11	5.88	0.0121	0.0136	:27	13.2	0.0272	0.0585	:30	.02	T		:51	17.1	0.0353	0.0215
:12	5.70	0.0118	0.0138	:28	13.2	0.0272	0.0590	9:00	.01	T		:52	18.3	0.0377	0.0221
:13	5.53	0.0114	0.0140	:29	13.2	0.0272	0.0595	:30	T	T		:53	19.1	0.0394	0.0227
:14	5.44	0.0112	0.0142	:30	13.2	0.0272	0.0600	11:30	T	T		:54	19.5	0.0402	0.0234
:15	5.36	0.0111	0.0144	:35	13.0	0.0268	0.0622	12:00	0	0		:55	20.7	0.0427	0.0241
:16	5.20	0.0107	0.0146	:40	12.4	0.0256	0.0644					:56	22.3	0.0460	0.0248
:17	5.04	0.0104	0.0148	:45	12.0	0.0247	0.0665	June 8 <sup>20</sup>				:57	22.7	0.0468	0.0256
:18	4.88	0.0101	0.0150	:50	11.8	0.0243	0.0685					:58	22.5	0.0464	0.0264
:19	4.88	0.0101	0.0152	:55	11.8	0.0241	0.0705					:59	22.5	0.0464	0.0272
:20	4.88	0.0101	0.0154	6:00	11.2	0.0231	0.0725	8:17	0	0	0	10:00	22.5	0.0464	0.0280
:21	4.96	0.0102	0.0156	:05	10.8	0.0223	0.0744	:18	.01	T		:02	22.3	0.0460	0.0295
:22	5.36	0.0111	0.0158	:10	10.2	0.0210	0.0762	:19	.02	T		:05	21.9	0.0452	0.0318
:23	8.13	0.0168	0.0160	:15	9.55	0.0197	0.0779	:20	.03	.0001		:10	21.1	0.0435	0.0356
:24	10.3	0.0212	0.0163	:20	8.94	0.0184	0.0795	:21	.04	.0001		:15	20.5	0.0423	0.0391
:25	12.0	0.0247	0.0167	:25	8.36	0.0172	0.0810	:22	.09	.0002		:20	19.7	0.0406	0.0426
:26	12.2	0.0252	0.0171	:30	7.91	0.0163	0.0824	:23	.13	.0003		:25	18.3	0.0377	0.0459
:27	13.1	0.0270	0.0175	:35	7.80	0.0161	0.0838	:24	.19	.0004		:30	16.2	0.0334	0.0489
:28	15.2	0.0313	0.0180	:40	6.44	0.0133	0.0850	:25	.26	.0005		:35	14.6	0.0301	0.0515
:29	14.9	0.0307	0.0185	:45	5.79	0.0119	0.0860	:26	.28	.0006		:40	12.5	0.0258	0.0538
:30	19.9	0.0410	0.0191	:50	5.20	0.0107	0.0869	:27	.28	.0006		:45	10.9	0.0225	0.0558
:31	23.3	0.0476	0.0198	:55	4.72	0.0097	0.0877	:28	.29	.0006		:50	9.30	0.0192	0.0575
:32	19.9	0.0410	0.0205	7:00	4.27	0.0088	0.0885	:30	.29	.0006		:55	7.91	0.0163	0.0590
:33	17.9	0.0369	0.0211	:05	4.06	0.0084	0.0892	:32	.29	.0006		11:00	7.26	0.0150	0.0603
:34	16.8	0.0346	0.0217	:10	3.85	0.0079	0.0899	:33	.28	.0006		:05	6.06	0.0125	0.0615
:35	16.0	0.0330	0.0223	:15	3.52	0.0073	0.0905	:34	.27	.0006		:10	5.36	0.0111	0.0625
:36	15.8	0.0326	0.0228	:20	3.09	0.0064	0.0911	:35	.26	.0005		:15	4.88	0.0101	0.0634
:37	15.6	0.0322	0.0233	:25	2.74	0.0056	0.0916	:36	.26	.0005		:20	4.34	0.0089	0.0642
:38	15.2	0.0313	0.0238	:30	2.52	0.0052	0.0920	:37	.27	.0006		:25	3.99	0.0082	0.0649
:39	15.0	0.0309	0.0243	:35	2.31	0.0048	0.0924	:38	.30	.0006		:30	3.72	0.0077	0.0656
:40	14.9	0.0307	0.0248	:40	2.11	0.0044	0.0928	:39	.36	.0007		:35	3.46	0.0071	0.0662
:41	14.6	0.0301	0.0253	:45	2.02	0.0042	0.0932	:40	.42	.0009		:40	2.97	0.0061	0.0668
:42	14.4	0.0297	0.0258	:50	1.84	0.0038	0.0935	:41	.52	.0011		:45	2.63	0.0054	0.0673
:43	14.2	0.0293	0.0263	:55	1.75	0.0036	0.0938	:42	.67	.0014		:50	2.41	0.0050	0.0677
:44	14.0	0.0289	0.0268	8:00	1.67	0.0034	0.0941	:43	.86	.0018		:55	2.21	0.0046	0.0681
:45	13.7	0.0282	0.0273	:15	1.51	0.0031	0.0949	:44	1.09	.0022		12:00	2.02	0.0042	0.0685
:46	13.4	0.0276	0.0278	:30	1.36	0.0028	0.0957	:45	1.29	.0027					
:47	13.1	0.0270	0.0283	:45	1.12	0.0023	0.0963	:46	1.51	.0031		June 9			
:48	12.8	0.0264	0.0287	9:00	.92	0.0019	0.0968	:47	1.63	.0034	.0001	a. m.			
:49	12.6	0.0260	0.0291	:30	.59	0.0012	0.0976	:48	1.75	.0036	.0002	12:05	1.84	0.0038	0.0688
:50	12.4	0.0256	0.0295	10:00	.39	0.0008	0.0981	:49	1.84	.0038	.0003	:10	1.75	0.0036	0.0691
:51	11.7	0.0241	0.0299	:30	.27	0.0006	0.0985	:50	2.02	.0042	.0004	:15	1.59	0.0033	0.0694
:52	11.1	0.0229	0.0303	11:00	.19	0.0004	0.0987	:51	2.11	.0044	.0005	:20	1.47	0.0030	0.0697
:53	10.9	0.0225	0.0307	:30	.15	0.0003	0.0989	:52	2.36	.0049	.0006	:25	1.40	0.0029	0.0699
:54	10.3	0.0212	0.0311	12:00	.09	0.0002	0.0990	:53	2.52	.0052	.0007	:30	1.29	0.0027	0.0701
:55	11.1	0.0229	0.0315					:54	2.68	.0055	.0008	:35	1.22	0.0025	0.0703
:56	12.0	0.0247	0.0319					:55	2.85	.0059	.0009	:40	1.15	0.0024	0.0705
:57	11.4	0.0235	0.0323	12:15	.07	0.0002		:56	2.97	.0061	.0010	:45	1.09	0.0022	0.0707
:58	10.9	0.0225	0.0327	:30	.05	0.0001		:57	3.09	.0064	.0011	:50	1.06	0.0022	0.0709
:59	10.6	0.0218	0.0331	:45	.04	0.0001		:58	3.27	.0067	.0012	:55	.98	0.0020	0.0711
4:00	10.0	0.0206	0.0335	1:00	.03	0.0001		:59	3.46	.0071	.0013	1:00	.95	0.0020	0.0713
:01	9.55	0.0197	0.0338	:15	.03	0.0001		9:00	3.85	.0079	.0014	:15	.81	0.0017	0.0717
:02	9.06	0.0187	0.0341	:30	.02	T		:01	4.13	.0085	.0015	:30	.67	0.0014	0.0721
:03	8.59	0.0177	0.0344	:45	.02	T		:02	4.42	.0091	.0016	:45	.55	0.0011	0.0724
:04	8.36	0.0172	0.0347	2:00	.02	T		:03	4.72	.0097	.0018	:50	.48	0.0010	0.0726
:05	8.13	0.0168	0.0350	:15	.01	T		:04	5.04	.0104	.0020	2:00	.42	0.0009	0.0728
:06	8.02	0.0165	0.0353	:30	.01	T		:05	5.36	.0111	.0022	:15	.34	0.0007	0.0730
:07	7.91	0.0163	0.0356	:45	.01	T		:06	5.88	.0121	.0024	:30	.29	0.0006	0.0732
:08	7.91	0.0163	0.0359	:50	.01	T		:07	6.44	.0133	.0026	:45	.24	0.0005	0.0734
:09	7.69	0.0159	0.0362	:55	.01	T		:08	7.05	.0145	.0028	3:00	.21	0.0004	0.0735
:10	7.58	0.0156	0.0365	3:00	.01	T		:09	7.69	.0159	.0031	:15	.18	0.0004	0.0736
:11	7.36	0.0152	0.0368	:30	T	T		:10	8.13	.0168	.0034	:30	.13	0.0003	0.0738
:12	7.26	0.0150	0.0371	12:00	T	T		:11	9.06	.0187	.0037	4:00	.07	0.0002	0.0740
:13	7.16	0.0148	0.0373					:12	9.42	.0194	.0040	5:00	.04	0.0001	0.0742
:14	7.05	0.0145	0.0375	May 18				:13	9.68	.0200	.0043	6:00	.02	T	
:15	6.94	0.0143	0.0377	a. m.				:14	10.0	.0206	.0046	7:00	.01	T	
:16</															



TABLE 24.—Run-off from watershed 3, July 16, 1938, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1940				1940				1940				1940			
Aug. 12 <sup>21</sup>	Second-feet	Inches per hour	Inches	Aug. 12	Second-feet	Inches per hour	Inches	Sept. 24	Second-feet	Inches per hour	Inches	Sept. 24	Second-feet	Inches per hour	Inches
p. m.				p. m.				a. m.				a. m.			
4:04-----	0	0	0	8:45-----	0.04	0.0001		4:00-----	0.95	0.0020	0.0003	7:00-----	0.59	0.0012	0.0146
:05-----	3.09	.0064	.0001	9:00-----	.03	.0001		:05-----	.98	.0020	.0005	:15-----	.47	.0010	.0149
:06-----	5.70	.0118	.0003	:15-----	.03	.0001		:10-----	1.00	.0021	.0007	:30-----	.36	.0007	.0151
:07-----	6.25	.0129	.0005	:30-----	.02	T		:15-----	1.03	.0021	.0009	:45-----	.28	.0006	.0153
:08-----	6.54	.0135	.0007	:45-----	.02	T		:20-----	1.09	.0022	.0011	8:00-----	.24	.0005	.0155
:09-----	6.84	.0141	.0009	10:00-----	.01	T		:25-----	1.22	.0025	.0013	:15-----	.18	.0004	.0156
:10-----	7.05	.0145	.0011	:45-----	.01	T		:30-----	1.59	.0033	.0015	:30-----	.13	.0003	.0157
:11-----	6.16	.0127	.0013	11:00-----	T	T		:35-----	2.41	.0050	.0019	:45-----	.10	.0002	
:12-----	6.06	.0125	.0015	12:00-----	T	T		:40-----	3.46	.0071	.0024	9:00-----	.07	.0002	
:15-----	6.16	.0127	.0021					:45-----	3.99	.0082	.0030	:15-----	.06	.0001	
:18-----	6.16	.0127	.0027	Aug. 13				:50-----	4.42	.0091	.0037	:30-----	.04	.0001	
:20-----	5.97	.0123	.0031	a. m.				:55-----	4.72	.0097	.0045	:45-----	.03	.0001	
:25-----	5.28	.0109	.0041	12:30-----	T	T		5:00-----	4.72	.0097	.0053	10:00-----	.02	T	
:30-----	4.80	.0099	.0050	1:00-----	0	0	0.0126	:05-----	4.64	.0096	.0061	:15-----	.02	T	
:35-----	4.27	.0088	.0058					:10-----	4.50	.0093	.0069	:30-----	.02	T	
:40-----	3.72	.0077	.0065	Sept. 24 <sup>22</sup>				:15-----	4.27	.0088	.0077	:45-----	.01	T	
:45-----	3.33	.0069	.0071	a. m.				:20-----	4.06	.0084	.0084	11:00-----	.01	T	
:50-----	2.85	.0059	.0076	2:46-----	0	0	0	:25-----	3.72	.0077	.0091	:15-----	T	T	
:55-----	2.52	.0052	.0081	:47-----	T	T		:30-----	3.46	.0071	.0097				
5:00-----	2.31	.0048	.0085	:55-----	T	T		:35-----	3.09	.0064	.0103	p. m.			
:05-----	2.11	.0044	.0089	3:00-----	.01	T		:40-----	2.85	.0059	.0108	12:45-----	T	T	
:10-----	1.84	.0038	.0092	:15-----	.01	T		:45-----	2.58	.0053	.0113	:57-----	0	0	.0159
:15-----	1.67	.0034	.0095	:20-----	T	T		:50-----	2.31	.0048	.0117				
:30-----	1.22	.0025	.0103	:42-----	T	T		:55-----	2.06	.0042	.0121	Nov. 19 <sup>5</sup>			
:45-----	.92	.0019	.0109	:43-----	.02	T		6:00-----	1.84	.0038	.0124	a. m.			
6:00-----	.67	.0014	.0113	:44-----	.19	.0004		:05-----	1.67	.0034	.0127	10:58-----	0	0	0
:15-----	.51	.0011	.0116	:45-----	.33	.0007		:10-----	1.51	.0031	.0130	:59-----	.01	T	
:30-----	.42	.0009	.0118	:46-----	.45	.0009		:15-----	1.36	.0028	.0132	:11:00-----	.01	T	
:45-----	.32	.0007	.0120	:47-----	.52	.0011		:20-----	1.22	.0025	.0134	:30-----	.01	T	
7:00-----	.26	.0005	.0122	:48-----	.57	.0012		:25-----	1.09	.0022	.0136	:45-----	T	T	
:15-----	.20	.0004	.0123	:49-----	.61	.0013		:30-----	.98	.0020	.0138				
:30-----	.15	.0003	.0124	:50-----	.67	.0014		:35-----	.92	.0019	.0140	p. m.			
:45-----	.12	.0002		:55-----	.81	.0017	.0001	:40-----	.84	.0017	.0142	1:30-----	T	T	
8:00-----	.09	.0002						:45-----	.76	.0016	.0143	2:00-----	0	0	T
:15-----	.07	.0002						:50-----	.67	.0014	.0144				
:30-----	.06	.0001						:55-----	.63	.0013	.0145				

<sup>1</sup> Total rainfall for storm of July 25, 0.39 inch. Soil dry. Corn, 30 inches high in straight rows 42 inches apart. Small grains all cut, stubble 4 inches high. Pasture poor, 2 inches high. Meadow good, 6 inches high.

<sup>2</sup> Total rainfall for storm of July 26-27, 0.71 inch. Soil wet and firm from rain of July 25. Corn 30 inches high. Small grains all cut, stubble 4 inches high. Pasture poor, 2 inches high. Meadow good, 6 inches high.

<sup>3</sup> Total rainfall for storm of Aug. 16, 0.93 inch. Surface soil wet and firm from shower of Aug. 15. Corn 36 inches high. Small grains all cut, stubble 4 inches high. Pasture poor, 2 inches high. Meadow good, 6 inches high.

<sup>4</sup> Total rainfall for storm of Sept. 12-13, 0.68 inch. Surface soil wet and firm from showers of previous days. Corn 36 inches high. Small grains all cut, stubble 4 inches high. Pasture poor, 1 inch high. Meadow cut, stubble 1 inch high.

<sup>5</sup> Run-off from melting snow.

<sup>6</sup> Total rainfall for storm of Mar. 11, 0.47 inch. Soil wet before rain. Corn stalks and grain stubble standing in fields. Thick covering of Russian thistle on most fields. Hay standing in most meadows from previous year. Pastures very little cover. Wheat fields green, wheat 2 inches high.

<sup>7</sup> Total rainfall for storm of Apr. 4, 1.32 inches. Soil moist before rain. Little change in cover from Mar. 11 except that wheat 3 inches high.

<sup>8</sup> Total rainfall for storm of May 20, 0.88 inch. Soil dry before rain. Corn just planted in straight rows with lister. Oats and barley 6 inches high. Winter wheat thin, 7 inches high. Meadows good cover from previous year. Pastures hard and dry, grass 1 inch high.

<sup>9</sup> Total rainfall for storm of May 22, 0.35 inch. Soil moist and firm before rain. Little change in cover from May 20.

<sup>10</sup> Total rainfall for storm of June 12, 0.37 inch. Soil moist and firm before rain. Corn 10 inches high. Oats and barley poor, almost ripe, 12 inches high. Wheat poor, almost ripe, 12 inches high. Sorghum recently planted. Meadows well covered. Pastures poor, grass 1 inch high.

<sup>11</sup> Total rainfall for storm of June 15, 0.73 inch. Soil moist before rain. Little change in cover from June 12.

<sup>12</sup> Total rainfall for storms of June 20-21, 1.88 inches. Soil moist before rain. Corn 12 inches high, much of it cultivated within the week preceding. Oats, wheat, and barley, 10 to 14 inches high, part harvested. Meadows well covered. Pastures very poor, grass 1 inch high. Sorghums sprouted.

<sup>13</sup> Total rainfall for storm of June 25, 0.58 inch. Soil moist before rain. Corn 18 inches high, little cultivation since storm of June 20-21. All small grains harvested, stubble 4 inches high remained. Sorghums, 4 inches high. Meadows, well covered; pastures, poor.

<sup>14</sup> Total rainfall for storm of July 1, 0.49 inch. Soil dry on surface before rain. Corn 24 inches high, sorghums 5 inches high. Most of corn and sorghums cultivated immediately before rain. Stubble remained from grain crops. Meadows, well covered; pastures, poor.

<sup>15</sup> Total rainfall for storm of Aug. 1, 0.32 inch. Soil dry before rain. Corn, 36 inches high. Sorghums, 24 inches high. Stubble remained from grain crops. Meadows well covered. Pastures poor, soil dry and hard.

<sup>16</sup> Total rainfall for storm of Aug. 7, 0.64 inch. Soil dry before rain. Little change in cover since Aug. 1.

<sup>17</sup> Total rainfall for storm of Aug. 11, 0.71 inch. Soil dry before rain. Little change in cover since Aug. 1.

<sup>18</sup> Total rainfall for storm of Aug. 15, 0.17 inch. Soil dry before rain. Little change in cover since Aug. 1.

<sup>19</sup> Total rainfall for storms of May 17-18, 1.73 inches. Soil moist before rain. Corn being planted. Grain 6 inches high, poor. Soil was well protected by thistles. Pastures and meadows, fair.

<sup>20</sup> Total rainfall for storm of June 8, 1.12 inches. Soil dry before rain. Corn was 4 inches high. Grain headed and about 12 inches high. Pastures and meadows fair.

<sup>21</sup> Total rainfall for storm of Aug. 12, 0.54 inch. Soil dry before rain. Corn tasseling and about 3 feet high. Grain all harvested, the stubble remaining. Pastures very poor. Meadows fair.

<sup>22</sup> Total rainfall for storm of Sept. 24, 0.78 inch. Soil wet from rains of previous days. Corn poor. Grain stubble remained in fields. Pastures very poor.



TABLE 25.—Run-off from watershed 8, July 27, 1938, to December 31, 1940

LOCATION: Latitude 40°13'51", longitude 98°22'41".

## PHYSICAL CHARACTERISTICS:

*Drainage area.*—3.26 square miles (2,086 acres).*Length of principal watercourse.*—26,100 feet (4.94 miles).*Topography.*—Undulating, well drained.*Slope.*—Average slope is 5.6 percent. 20 percent of the watershed has a slope of less than 2 percent; 24 percent, 2 to 5 percent; 36 percent, 5 to 8 percent; 14 percent, 8 to 12 percent; and 6 percent has a slope of 12 percent or over.*Erosion condition.*—There are occasional gullies on 16 percent of the watershed. 44 percent of the area has lost less than 25 percent of the topsoil and is not gullied. 36 percent, a fifth of which is gullied, has lost 25 to 50 percent of the topsoil. The remaining 20 percent is more severely eroded.*Soil.*—Hastings silt loam, 45 percent; Holdrege silt loam, 14 percent; Colby silt loam, 9 percent; Judson silt loam, 7 percent; other related types, 25 percent.

## LAND USE AND VEGETAL COVER:

*Land use distribution.*—Pasture, 18 percent; meadow, 5 percent; cultivated land, 74 percent; other uses, 3 percent.*Vegetal cover and soil condition.*—See tables 18 to 20.

## MEASUREMENTS:

*Precipitation.*—Rainfall was measured at 7 recording rain gages, A31R, B28R, B36R, C24R, C29R (discontinued Apr. 20, 1939), C31R, D31R, and B33R, and 14 nonrecording rain gages (fig. 1). Snowfall was measured by weighing and recording rain and snow gages and by cooperative observers' measurements. Snow inventory on the watershed was obtained by inspection.*Run-off.*—Run-off was measured by current meters at medium and high stages and by a precalibrated 1-on-3 broad-crested V-notch weir at low stages. The record of run-off is good. 12 current-meter measurements were made throughout the range in stage.*Changes in instrumentation during period.*—Rain gages B28R, B36R, and C24R were installed Apr. 20, 1939. C29R, B37, and C28 were discontinued Apr. 20, 1939, and B28R, B36R, and C24R, respectively, were used in their stead.

## SUMMARY OF RECORDS:

*Run-off.*—Annual run-off amount 1939, 0.520 inch; 1940, 0.036 inch. Maximum rate of run-off 1938, 0.022 inch per hour Apr. 17; 1939, 0.047 inch per hour, June 20; 1940, 0.007 inch per hour, June 8.

Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off
1938			1938			1938			1938		
Aug. 17 <sup>1</sup>			Aug. 17			Sept. 13 <sup>2</sup>			Sept. 13		
a. m.	Second-foot 0	Inches per hour 0	a. m.	Second-foot 0	Inches per hour 0	a. m.	Second-foot 0	Inches per hour 0	a. m.	Second-foot 0	Inches per hour 0
12:08-----	.14	T	7:45-----	11.6	0.0055	3:09-----	.01	T	10:00-----	5.80	0.0028
:09-----	.63	.0003	8:00-----	10.7	.0050	:10-----	.03	T	:30-----	4.55	.0022
:10-----	1.04	.0005	:15-----	9.92	.0048	:11-----	.06	T	:30-----	3.60	.0017
:11-----	2.07	.0010	:30-----	9.09	.0043	:12-----	.11	T	:30-----	2.65	.0012
:12-----	2.97	.0014	:45-----	8.24	.0039	:13-----	.22	T	12:00-----	1.98	.0009
:13-----	4.11	.0020	9:00-----	7.31	.0035	:14-----	.34	.0002	p. m.		
:14-----	5.47	.0026	:15-----	6.41	.0030	:15-----	.44	.0002	12:30-----	1.57	.0007
:15-----	7.28	.0033	:30-----	5.29	.0025	:16-----	.59	.0003	1:00-----	1.22	.0006
:16-----	8.40	.0040	:45-----	4.55	.0022	:17-----	.72	.0003	:30-----	.98	.0005
:17-----	10.5	.0050	10:00-----	3.95	.0019	:18-----	.87	.0004	2:00-----	.82	.0004
:18-----	11.7	.0056	:15-----	3.47	.0016	:19-----	1.10	.0005	:30-----	.68	.0003
:19-----	12.6	.0060	:30-----	3.06	.0015	:20-----	1.22	.0006	3:00-----	.59	.0003
:20-----	15.2	.0072	:45-----	2.55	.0012	:21-----	1.36	.0006	:30-----	.48	.0002
:22-----	19.7	.0094	11:00-----	2.25	.0011	:22-----	1.57	.0007	4:00-----	.44	.0002
:25-----	25.7	.0125	:15-----	1.98	.0009	:23-----	1.73	.0008	:30-----	.38	.0002
:30-----	31.9	.0152	:30-----	1.81	.0009	:24-----	1.89	.0009	5:00-----	.38	.0002
:35-----	35.6	.0169	:45-----	1.57	.0007	:25-----	1.98	.0009	:30-----	.32	.0002
:40-----	39.3	.0187	12:00-----	1.43	.0007	:26-----	2.16	.0010	6:00-----	.29	.0001
:45-----	42.9	.0204	p. m.			:27-----	2.35	.0011	7:00-----	.24	.0001
:50-----	45.7	.0217	12:30-----	1.16	.0006	:28-----	2.45	.0012	8:00-----	.20	T
:55-----	46.5	.0221	1:00-----	.98	.0005	:29-----	2.65	.0012	9:00-----	.16	T
1:00-----	46.3	.0220	:30-----	.87	.0004	:30-----	3.21	.0015	10:00-----	.12	T
:05-----	45.5	.0216	2:00-----	.72	.0003	:35-----	3.71	.0018	11:00-----	.11	T
:08-----	44.7	.0213	:30-----	.68	.0003	:40-----	3.97	.0019	12:00-----	.09	T
:10-----	43.4	.0206	3:00-----	.59	.0003	:45-----	4.11	.0020	Sept. 14		
:15-----	40.8	.0193	:30-----	.51	.0002	:50-----	4.25	.0020	a. m.		
:20-----	36.8	.0175	4:00-----	.44	.0002	:55-----	4.25	.0020	1:00-----	.08	T
:30-----	32.5	.0154	:30-----	.41	.0002	4:00-----	4.11	.0020	:30-----	.07	T
:40-----	28.2	.0134	5:00-----	.38	.0002	:15-----	3.84	.0018	2:00-----	.06	T
:50-----	25.0	.0119	6:00-----	.29	.0001	:30-----	3.21	.0015	3:00-----	.05	T
2:00-----	22.3	.0106	7:00-----	.24	.0001	:35-----	2.65	.0012	:30-----	.04	T
:10-----	20.8	.0099	8:00-----	.20	T	:40-----	2.35	.0011	4:30-----	.03	T
:20-----	20.0	.0095	9:00-----	.18	T	:45-----	2.16	.0010	5:00-----	.03	T
:30-----	19.3	.0092	10:00-----	.14	T	:50-----	1.98	.0009	6:00-----	.02	T
:40-----	18.8	.0089	12:00-----	.11	T	5:00-----	1.73	.0008	7:00-----	.01	T
:50-----	18.3	.0087	Aug. 18			:15-----	1.57	.0007	8:00-----	.01	T
3:00-----	18.3	.0087	a. m.			:20-----	1.36	.0006	9:00-----	.01	T
:15-----	18.9	.0090	2:00-----	.08	T	:25-----	1.22	.0006	10:00-----	.00	T
:30-----	19.5	.0092	4:00-----	.06	T	:30-----	1.10	.0005	11:00-----	.00	T
:45-----	21.0	.0100	5:00-----	.05	T	:35-----	1.00	.0004	12:00-----	.00	T
4:00-----	22.7	.0107	6:00-----	.04	T	:40-----	.87	.0004	p. m.		
:15-----	24.5	.0117	8:00-----	.03	T	:45-----	.72	.0003	1:00-----	T	T
:30-----	26.1	.0124	10:00-----	.02	T	:50-----	.59	.0003	4:00-----	T	T
:45-----	27.2	.0129	11:00-----	.02	T	5:00-----	.48	.0002	1939		
5:00-----	27.5	.0130	12:00-----	.01	T	:05-----	.38	.0002	Mar. 7 <sup>3</sup>		
:15-----	27.0	.0128	p. m.			:10-----	.32	.0002	p. m.		
:30-----	25.9	.0123	1:00-----	.01	T	:15-----	.29	.0001	3:52-----	.59	.0003
:45-----	24.0	.0114	2:00-----	.01	T	:20-----	.24	.0001	:54-----	.98	.0005
6:00-----	21.8	.0104	4:00-----	.01	T	:25-----	.19	.0001	0		
:15-----	19.4	.0092	6:00-----	T	T	:30-----	.14	.0001	0		
:30-----	17.1	.0081	8:00-----	T	T	:35-----	.11	.0001	0		
:45-----	15.2	.0072	10:00-----	0	0	8:00-----	9.72	.0047	0		
7:00-----	13.8	.0066	12:00-----	0	0	:30-----	8.18	.0039	0		
:15-----	12.6	.0060				:30-----	6.93	.0033	0		
:30-----											

See footnotes at end of table, p. 46.



TABLE 25.—Run-off from watershed 8, July 27, 1933, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1939				1939				1939				1939			
Mar. 7				Mar. 9				Mar. 11				Mar. 13			
p. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches
3:55	1.43	0.0007		2:00	1.84	0.0009	0.0026	4:00	0.39	0.0002	0.0005	4:00	0.12	0.0001	0.0061
:56	1.84	.0009		3:00	1.36	.0006	.0034	5:00	.43	.0002	.0007	5:00	.10	T	
:57	2.21	.0010		4:00	1.09	.0005	.0040	6:00	.55	.0003	.0009	6:00	.10	T	
:58	2.74	.0013		5:00	.92	.0004	.0044	7:00	.52	.0002	.0011	7:00	.12	.0001	.0061
:59	3.09	.0015		6:00	.86	.0004	.0048	8:00	.48	.0002	.0013	8:00	.15	.0001	.0062
4:00	3.46	.0016		7:00	.86	.0004	.0052	9:00	.42	.0002	.0015	9:00	.17	.0001	.0063
:02	4.13	.0020	0.0001	8:00	.86	.0004	.0056	:30	.39	.0002	.0016	10:00	.15	.0001	.0064
:05	4.88	.0023	.0002	9:00	.86	.0004	.0060	10:00	.36	.0002	.0017	11:00	.13	.0001	.0065
:07	5.36	.0025	.0003	10:00	.86	.0004	.0064	11:00	.30	.0001	.0019	12:00	.12	.0001	.0066
:10	5.88	.0023	.0004	11:00	.81	.0004	.0068	12:00	.26	.0001	.0020				
:15	6.64	.0032	.0006	:30	.75	.0004	.0070								
:20	7.05	.0034	.0009	12:00	.98	.0005	.0072								
:25	7.69	.0037	.0012					p. m.							
:30	7.91	.0038	.0015					1:00	.23	.0001	.0021				
:40	7.91	.0038	.0021	12:15	1.22	.0006	.0074	2:00	.23	.0001	.0022	3:00	.09	T	T
:50	7.69	.0037	.0027	:30	1.51	.0007	.0076	3:00	.33	.0002	.0024	6:00	.12	.0001	
5:00	7.47	.0036	.0033	:45	1.75	.0008	.0078	:30	.52	.0002	.0025	8:00	.15	.0001	0.0002
:15	7.05	.0034	.0042	1:00	1.93	.0009	.0080	:45	.59	.0003	.0026	10:00	.12	.0001	.0004
:30	6.64	.0032	.0050	2:00	2.11	.0010	.0090	4:00	.55	.0003	.0026	:30	.09	T	
:45	6.25	.0030	.0058	:30	2.21	.0010	.0095	5:00	.55	.0003	.0029	11:00	.07	T	
6:00	5.88	.0023	.0065	3:00	2.11	.0010	.0100	6:00	.55	.0003	.0032	:30	.06	T	
:30	5.04	.0024	.0078	4:00	1.93	.0009	.0110	7:00	.59	.0003	.0035	12:00	.06	T	
7:00	4.27	.0020	.0089	5:00	1.67	.0008	.0118	8:00	.67	.0003	.0038				
:30	3.72	.0018	.0099	7:00	1.36	.0006	.0132	:30	.72	.0003	.0040	p. m.			
8:00	4.88	.0023	.0109	8:00	1.43	.0007	.0138	9:00	.52	.0002	.0041	1:00	.04	T	
:15	6.06	.0029	.0115	:30	1.51	.0007	.0142	:30	.39	.0002	.0042	2:00	.04	T	
:30	7.05	.0034	.0123	9:00	1.93	.0009	.0146	10:00	.30	.0001	.0043	3:00	.03	T	
:45	7.91	.0038	.0132	:30	2.11	.0010	.0151	11:00	.23	.0001	.0044	:30	.03	T	
9:00	8.36	.0040	.0142	10:00	2.31	.0011	.0156	12:00	.17	.0001	.0045	:45	.02	T	
:15	8.59	.0041	.0152	:30	2.41	.0011	.0162					4:00	.02	T	
:30	8.36	.0040	.0162	11:00	2.41	.0011	.0168	Mar. 12				:30	.02	T	
10:00	7.91	.0038	.0182	:30	2.41	.0011	.0174	a. m.				5:00	.02	T	
:30	7.05	.0034	.0200	12:00	2.31	.0011	.0180	1:00	.17	.0001	.0001	:15	.01	T	
11:00	6.06	.0029	.0216					2:00	.13	.0001	.0002	:30	.01	T	
:30	5.20	.0025	.0230	Mar. 10				4:00	.13	.0001	.0004	:30	.01	T	
12:00	4.42	.0021	.0242	a. m.				5:00	.12	.0001	.0005	:32	.01	T	
				12:30	2.21	.0011	.0006	6:00	.12	.0001	.0006	:35	.01	T	
Mar. 8				1:00	2.11	.0010	.0011	7:00	.13	.0001	.0007	:37	.02	T	
a. m.				:30	2.02	.0010	.0016	9:00	.13	.0001	.0009	:40	.02	T	
12:30	3.72	.0018	.0010	:45	1.93	.0009	.0018	:15	.13	.0001		:45	.02	T	
1:00	3.21	.0015	.0018	2:00	1.84	.0009	.0020	:25	.19	.0001		:50	.01	T	
:30	2.85	.0014	.0025	:15	1.75	.0008	.0022	:26	.28	.0001		7:00	.01	T	
2:00	2.41	.0011	.0031	:30	1.67	.0008	.0024	:30	.33	.0002	.0009	:15	.01	T	
3:00	1.93	.0009	.0041	3:00	1.59	.0008	.0028	10:00	.30	.0001	.0010	:25	.01	T	
4:00	1.51	.0007	.0049	:15	1.51	.0007	.0030	11:00	.33	.0002	.0012	:35	.01	T	
5:00	1.36	.0006	.0055	:30	1.43	.0007	.0032	12:00	.30	.0001	.0014	8:00	.06	T	
6:00	1.22	.0006	.0061	:45	1.36	.0006	.0034					:10	.06	T	
7:00	1.15	.0005	.0067	4:00	1.29	.0006	.0036	p. m.				:20	0	0	.0004
8:00	1.15	.0005	.0072	:15	1.22	.0006	.0038	1:00	.28	.0001	.0015				
9:00	1.15	.0005	.0077	:30	1.15	.0005	.0040	2:00	.25	.0001	.0016	Apr. 4 <sup>5</sup>			
:15	1.09	.0005	.0078	:45	1.09	.0005	.0041	:50	.33	.0002	.0018	a. m.			
:30	1.09	.0005	.0079	5:00	1.03	.0005	.0042	3:00	.39	.0002		11:03	0	0	0
10:00	1.15	.0005	.0081	:15	.98	.0005	.0043	:15	.52	.0002		:04	T	T	
:30	1.29	.0006	.0084	:30	.92	.0004	.0044	:30	.63	.0003		:05	.01	T	
11:00	1.75	.0008	.0088	:45	.86	.0004	.0045	:45	.81	.0004	.0019	:06	.01	T	
:01	2.11	.0010		6:00	.81	.0004	.0046	4:00	1.09	.0005	.0020	:07	.03	T	
:05	2.21	.0011	.0089	:15	.76	.0004	.0047	:15	1.51	.0007	.0022	:08	.03	T	
:15	2.41	.0011	.0091	:30	.72	.0003	.0048	:30	2.02	.0010	.0024	:09	.05	T	
:30	2.85	.0014	.0094	:45	.67	.0003	.0049	:45	2.41	.0011	.0026	:10	.06	T	
:45	3.59	.0017	.0098	7:00	.67	.0003	.0050	5:00	2.74	.0013	.0029	:20	.06	T	
12:00	4.13	.0020	.0102	:15	.63	.0003	.0051	:30	2.85	.0014	.0036	:30	.06	T	
				:30	.59	.0003	.0052	6:00	2.74	.0013	.0043	:45	.05	T	
				:45	.59	.0003	.0053	7:00	2.31	.0011	.0055	12:00	.04	T	
				8:00	.55	.0003	.0054	:30	2.11	.0010	.0060				
12:30	5.04	.0024	.0113	:30	.52	.0002	.0055	8:00	2.21	.0010	.0065	p. m.			
1:00	6.06	.0029	.0126	9:00	.48	.0002	.0056	:30	2.63	.0012	.0071	12:15	.04	T	
:30	6.44	.0031	.0141	10:00	.45	.0002	.0058	9:00	3.21	.0015	.0078	:30	.05	T	
2:00	7.05	.0034	.0157	:30	.42	.0002	.0059	10:00	3.72	.0018	.0094	:31	.05	T	
:30	7.26	.0034	.0174	11:00	.39	.0002	.0060	11:00	3.33	.0016	.0111	:32	.28	.0001	
3:00	7.26	.0034	.0191	:30	.36	.0002	.0061	12:00	2.85	.0014	.0126	:33	1.09	.0005	
4:00	6.84	.0032	.0224	12:00	.33	.0002	.0062					:34	1.84	.0009	
5:00	6.44	.0031	.0256					Mar. 13				:35	2.63	.0012	
:20	6.64	.0032	.0267					a. m.				:36	3.59	.0017	
:21	7.05	.0034	.0268	1:00	.33	.0002	.0064	1:00	2.31	.0011	.0012	:37	4.88	.0023	
:25	7.05	.0034	.0270	2:00	.33	.0002	.0066	2:00	1.93	.0009	.0022	:38	5.70	.0027	
:30	6.64	.0032	.0273	3:00	.33	.0002	.0068	3:00	1.51	.0007	.0030	:39	6.64	.0032	
6:00	6.64	.0													



TABLE 25.—Run-off from watershed 8, July 27, 1938, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1939				1939				1939				1939			
Apr. 4	Second-foot	Inches per hour	Inches	Apr. 6	Second-foot	Inches per hour	Inches	May 22	Second-foot	Inches per hour	Inches	June 17	Second-foot	Inches per hour	Inches
p. m.				a. m.				p. m.				a. m.			
2:20	30.5	0.0145	0.0200	4:00	0.03	T		4:00	0.17	0.0001	0.0073	1:00	0.01	T	
3:00	28.7	0.0136	0.0224	4:22	0.03	T		5:00	0.13	0.0001		1:15	T	T	
3:30	27.2	0.0129	0.0246	4:27	0.03	T		6:00	0.10	T		1:30	T	T	
4:00	25.4	0.0121	0.0267	4:33	0.04	T		7:00	0.09	T		1:40	T	T	
4:30	25.2	0.0120	0.0287	4:45	0.03	T		8:00	0.07	T		1:50	T	T	
5:00	25.2	0.0120	0.0317	5:00	0.03	T		9:00	0.05	T		2:00	T	T	
5:15	25.0	0.0119	0.0347	5:15	0.02	T		10:00	0.04	T		2:30	0	0	0.0021
5:30	25.8	0.0122	0.0377	5:45	0.02	T		11:00	0.03	T					
5:45	27.8	0.0132	0.0409	6:00	0.01	T		12:00	0.03	T		June 20 <sup>s</sup>			
6:00	30.8	0.0146	0.0444	6:25	0.01	T						p. m.			
6:15	33.8	0.0160	0.0482	6:40	0.01	T		May 23				4:21	0	0	0
6:30	34.8	0.0165	0.0522	6:55	T	T		a. m.				4:22	0.02	T	
6:45	33.3	0.0158	0.0562	7:10	T	T		1:00	0.02	T		4:23	0.03	T	
7:00	30.4	0.0145	0.0600	7:25	0	0	0.1094	2:00	0.02	T		4:24	0.03	T	
7:15	27.2	0.0129	0.0634					3:00	0.01	T		4:25	0.03	T	
7:30	24.3	0.0116	0.0665	May 22 <sup>s</sup>				4:00	0.01	T		4:26	0.02	T	
7:45	21.3	0.0101	0.0692	a. m.				5:00	0.01	T		4:27	0.02	T	
8:00	19.6	0.0089	0.0716	2:50	0	0		6:45	0.01	T		4:28	0.02	T	
8:15	18.7	0.0089	0.0739	3:00	0.05	T	0	7:00	T	T		4:29	0.02	T	
8:30	18.3	0.0087	0.0761	3:05	0.05	T		7:15	T	T		4:30	0.03	T	
8:45	18.7	0.0089	0.0783	3:10	0.06	T		8:00	0	0	0.0073	4:31	0.03	T	
9:00	18.9	0.0090	0.0805	3:15	0.07	T						4:32	0.02	T	
9:15	18.7	0.0089	0.0827	3:20	0.09	T						4:33	0.02	T	
9:30	18.3	0.0087	0.0849	3:25	0.09	T						4:34	0.03	T	
9:45	18.0	0.0085	0.0871	3:30	0.09	T						4:35	0.03	T	
10:00	17.0	0.0081	0.0892	3:35	0.05	T						4:36	0.04	T	
10:15	15.4	0.0073	0.0911	3:40	0.05	T						4:37	0.05	T	
10:30	14.2	0.0068	0.0929	3:45	0.08	T						4:38	0.07	T	
10:45	13.0	0.0062	0.0945	3:50	0.03	T						4:39	0.12	T	
11:00	11.7	0.0056	0.0960	3:55	0.02	T						4:40	0.15	0.0001	
11:15	10.3	0.0049	0.0973	4:00	0.03	T						4:41	0.17	0.0001	
11:30	9.06	0.0043	0.0985	4:05	0.04	T						4:42	0.21	0.0001	
11:45	7.91	0.0038	0.0995	4:10	0.07	T						4:43	0.28	0.0001	
12:00	6.84	0.0032	0.1004	4:15	0.12	0.0001						4:44	0.42	0.0002	
	6.06	0.0029	0.1012	4:20	0.15	0.0001						4:45	0.48	0.0002	
	5.36	0.0025	0.1019	4:25	0.21	0.0001						4:46	0.67	0.0003	
	4.88	0.0023	0.1025	4:30	0.26	0.0001						4:47	0.98	0.0005	
	4.42	0.0021	0.1031	4:35	0.30	0.0001						4:48	1.36	0.0006	
	3.99	0.0019	0.1036	4:40	0.30	0.0001						4:49	1.59	0.0008	0.0001
	3.59	0.0017	0.1040	4:45	0.30	0.0001						4:50	1.93	0.0009	0.0002
	3.21	0.0015	0.1044	4:50	0.23	0.0001						4:51	2.11	0.0010	
Apr. 5				4:55	0.19	0.0001						4:52	2.74	0.0013	0.0003
a. m.				5:00	0.15	0.0001						4:53	3.33	0.0016	
12:15	2.97	0.0014	0.1048	5:05	0.32	0.0002						4:54	4.57	0.0022	0.0004
1:00	2.63	0.0012	0.1051	5:10	0.42	0.0002						4:55	5.70	0.0027	0.0005
1:30	2.41	0.0011	0.1054	5:15	0.59	0.0003						4:56	7.91	0.0038	0.0007
2:00	2.21	0.0010	0.1056	5:20	0.72	0.0003						4:57	9.70	0.0046	0.0008
2:30	1.84	0.0009	0.1061	5:25	0.86	0.0004						4:58	12.6	0.0061	0.0011
3:00	1.51	0.0007	0.1065	5:30	1.03	0.0005						4:59	15.0	0.0071	0.0013
3:30	1.36	0.0006	0.1068	5:35	1.22	0.0006						5:00	18.1	0.0086	0.0017
4:00	1.15	0.0005	0.1071	5:40	1.43	0.0007						5:01	20.5	0.0097	0.0020
4:30	0.86	0.0004	0.1075	5:45	1.59	0.0008						5:02	25.6	0.0122	0.0026
5:00	0.67	0.0003	0.1079	5:50	2.02	0.0010						5:03	29.3	0.0139	0.0030
5:30	0.55	0.0003	0.1082	5:55	2.63	0.0012	0.0001					5:04	33.4	0.0159	0.0037
6:00	0.45	0.0002	0.1084	6:00	3.46	0.0016	0.0002					5:05	36.9	0.0175	0.0043
6:30	0.36	0.0002	0.1086	6:05	3.99	0.0019	0.0004					5:06	40.6	0.0193	0.0052
7:00	0.30	0.0001	0.1088	6:10	4.42	0.0021	0.0006					5:07	46.7	0.0222	0.0069
7:30	0.26	0.0001	0.1090	6:15	4.57	0.0022	0.0008					5:08	54.3	0.0259	0.0089
				6:20	4.72	0.0022	0.0010					5:09	62.5	0.0297	0.0112
				6:25	4.72	0.0022	0.0012					5:10	71.2	0.0338	0.0133
				6:30	4.42	0.0021	0.0018					5:11	79.8	0.0379	0.0168
				6:35	3.99	0.0019	0.0023					5:12	87.4	0.0416	0.0201
				6:40	3.72	0.0018	0.0027					5:13	93.8	0.0445	0.0237
				6:45	3.33	0.0016	0.0031					5:14	96.7	0.0460	0.0275
				6:50	2.97	0.0014	0.0035					5:15	98.0	0.0466	0.0314
				6:55	2.63	0.0012	0.0038					5:16	97.5	0.0464	0.0353
				7:00	2.31	0.0011	0.0041					5:17	96.8	0.0461	0.0392
				7:05	2.11	0.0010	0.0043					5:18	95.0	0.0452	0.0430
				7:10	1.84	0.0009	0.0045					5:19	94.1	0.0447	0.0468
				7:15	1.67	0.0008	0.0047					5:20	94.1	0.0447	0.0505
				7:20	1.51	0.0007	0.0049					5:21	93.1	0.0442	0.0542
				7:25	1.36	0.0006	0.0051					5:22	88.8	0.0422	0.0650
				7:30	1.22	0.0005	0.0053					5:23	81.5	0.0387	0.0751
				7:35	1.09	0.0005	0.0055					5:24	77.0	0.0366	0.0845
				7:40	1.03	0.0005	0.0056					5:25	72.0	0.0342	0.0933
				7:45	0.92	0.0004	0.0057					5:26	67.5	0.0321	0.1016
				7:50	0.81	0.0004	0.0059					5:27	64.2	0.0305	0.1094
				7:55	0.68	0.0003	0.0061					5:28	61.2	0.0291	0.1168
				8:00	0.59	0.0003	0.0063					5:29	59.0	0.0280	0.1240
				8:05	0.55	0.0003	0.0065					5:30	56.1	0.0267	0.1308
				8:10	0.48	0.0002	0.0066					5:31	54.0	0.0257	0.1374
				8:15	0.42	0.0002	0.0067					5:32	52.0	0.0247	0.1437
												5:33	49.6	0.0235	0.1497
												5:34	47.4	0.0225	0.1555
												5:35	44.8	0.0213	0.1610
												5:36	42.2	0.0200	0.1662
												5:37	39.4	0.0187	0.1710
												5:38	37.0	0.0176	0.1756
												5:39	33.7	0.0160	0.1798
												5:40	31.0	0.0148	0.1836

See footnotes at end of table, p. 46.



TABLE 25.—Run-off from watershed 8, July 27, 1938, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1939															
June 21															
a. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches
12:15	27.8	0.0132	0.1871	1:00	1.03	0.0005	0.2401	7:15	T	T		12:05	0.01	T	
30	24.8	.0117	.1902	2:00	.86	.0004	.2405	4:00	T	T		1:10	.01	T	
45	22.4	.0106	.1930	3:00	.72	.0003	.2409	4:15	0.02	T		1:15	.01	T	
1:00	19.8	.0095	.1955	4:00	.63	.0003	.2412	4:20	.03	T		1:30	.01	T	
1:15	17.6	.0083	.1977	5:00	.55	.0003	.2415	4:30	.05	T		1:40	.01	T	
3:00	15.6	.0074	.1997	6:00	.48	.0002	.2417	4:40	.06	T		4:00	.01	T	
4:45	13.7	.0065	.2015	7:00	.42	.0002	.2419	4:45	.07	T		4:15	.01	T	
2:00	12.0	.0057	.2030	8:00	.36	.0002	.2421	4:57	.12	0.0001		4:30	.02	T	
1:15	10.5	.0050	.2044	9:00	.33	.0002	.2423	5:00	.17	.0001		4:35	.02	T	
3:00	9.4	.0044	.2056	10:00	.28	.0001	.2425	5:10	.23	.0001		4:55	.03	T	
4:45	8.4	.0040	.2066	12:00	.23	.0001	.2427	5:55	.30	.0001		6:15	.03	T	
3:00	7.5	.0036	.2076	June 23				5:57	.39	.0002		6:45	.04	T	
1:15	6.5	.0031	.2084	a. m.				8:00	.48	.0002		8:00	.06	T	
3:00	6.0	.0029	.2092	2:00	.17	.0001	.2429	8:05	.63	.0003		9:00	.07	T	
4:45	5.6	.0026	.2099	4:00	.13	.0001	.2431	10:00	.86	.0004		10:00	.07	T	
4:00	5.1	.0024	.2105	6:00	.12	T		1:15	1.03	.0005		12:00	.06	T	
1:15	4.9	.0023	.2111	8:00	.09	T		2:00	1.22	.0006		p. m.			
3:00	4.6	.0022	.2117	10:00	.07	T		3:00	1.59	.0008	0.0001	2:00	.05	T	
4:45	4.4	.0021	.2123	11:00	.05	T		4:15	1.93	.0009	.0003	5:00	.03	T	
5:00	4.13	.0020	.2128	12:00	.03	T		4:30	2.21	.0010	.0005	10:00	.02	T	
3:00	3.59	.0017	.2137	1:00	.03	T		4:45	2.31	.0011	.0007	July 6			
6:00	3.21	.0015	.2145	2:00	.03	T		5:00	2.31	.0011	.0010	a. m.			
3:00	2.97	.0014	.2152	3:00	.03	T		5:10	2.31	.0011	.0013	1:00	.02	T	
7:00	2.63	.0012	.2158	4:00	.02	T		5:55	2.31	.0011	.0015	6:00	.01	T	
8:00	2.21	.0010	.2169	5:00	.02	T		6:00	2.21	.0010	.0020	10:00	.01	T	
9:00	1.84	.0009	.2179	6:00	.01	T		6:15	1.93	.0009	.0024	p. m.			
10:00	1.59	.0008	.2187	7:00	.01	T		6:30	1.75	.0008	.0028	1:00	.01	T	
11:00	1.29	.0006	.2194	8:00	.01	T		6:45	1.59	.0008	.0032	2:30	.01	T	
12:00	1.09	.0005	.2200	9:00	.01	T		7:00	1.51	.0007	.0032	3:00	.01	T	
p. m.				10:00	T	T		p. m.				4:30	0	0	T
1:00	.92	.0004	.2204	11:00	T	T		1:00	1.29	.0006	.0038	5:30	0	0	T
2:00	.76	.0004	.2208	12:00	T	T		2:00	1.09	.0005	.0042	Aug. 12 <sup>12</sup>			
3:00	.67	.0003	.2212	June 25 <sup>9</sup>				3:00	.98	.0005	.0047	11:00	0	0	0
4:00	.55	.0003	.2215	3:29	0	0	0	4:00	.86	.0004	.0051	1:00	.01	T	
5:00	.48	.0002	.2217	4:00	.02	T		5:00	.82	.0004	.0055	2:30	.01	T	
6:00	.45	.0002	.2219	4:15	.09	T		6:00	.82	.0004	.0055	3:00	.01	T	
7:00	.36	.0002	.2221	4:45	.19	.0001		7:00	.82	.0004	.0055	3:30	.01	T	
3:20	.33	.0002	.2222	5:00	.33	.0002		8:00	.82	.0004	.0055	4:00	.01	T	
3:35	.36	.0002	.2222	5:15	.33	.0002		9:00	.82	.0004	.0055	4:30	.01	T	
4:00	.42	.0002	.2222	5:30	.33	.0002		10:00	.82	.0004	.0055	5:00	.01	T	
4:15	.48	.0002	.2222	5:45	.33	.0002		11:00	.82	.0004	.0055	5:30	.01	T	
5:00	.63	.0003	.2222	5:55	.33	.0002		12:00	.76	.0004	.0059	a. m.			
5:15	.76	.0004	.2222	6:00	.33	.0002		July 2				1:00	.01	T	
5:30	.92	.0004	.2222	6:15	.33	.0002		a. m.				2:00	.01	T	
5:45	1.29	.0006	.2222	6:30	.33	.0002		1:00	.67	.0003	.0093	3:00	.01	T	
8:00	1.59	.0008	.2222	6:45	.33	.0002		2:00	.59	.0003	.0096	4:00	.01	T	
9:00	1.29	.0007	.2222	6:55	.33	.0002		3:00	.52	.0002	.0098	5:00	.01	T	
10:00	1.29	.0007	.2222	7:00	.33	.0002		4:00	.45	.0002	.0100	6:00	.01	T	
11:00	1.29	.0007	.2222	7:15	.33	.0002		5:00	.42	.0002	.0102	7:00	.01	T	
12:00	1.29	.0007	.2222	7:30	.33	.0002		6:00	.36	.0002	.0104	8:00	.01	T	
June 26				7:45	.33	.0002		7:00	.30	.0001	.0106	9:00	.01	T	
a. m.				8:00	.33	.0002		8:00	.28	.0001	.0107	10:00	.01	T	
3:00	.28	.0001	.0028	8:15	.33	.0002		10:00	.21	.0001	.0108	11:00	.01	T	
6:00	.21	.0001	.0031	8:30	.33	.0002		12:00	.17	.0001	.0109	12:00	.01	T	
9:00	.15	.0001	.0034	8:45	.33	.0002		p. m.				1:00	.01	T	
12:00	.12	.0001	.0037	9:00	.33	.0002		2:00	.13	.0001	.0110	2:00	.01	T	
June 27				9:15	.33	.0002		4:00	.10	T		3:00	.01	T	
a. m.				9:30	.33	.0002		6:00	.09	T		4:00	.01	T	
3:00	.02	T		9:45	.33	.0002		8:00	.06	T		5:00	.01	T	
6:00	.02	T		10:00	.33	.0002		10:00	.05	T	.0110	6:00	.01	T	
9:00	.01	T		10:15	.33	.0002		12:00	.04	T		7:00	.01	T	
12:00	.01	T		10:30	.33	.0002		July 3				8:00	.01	T	
June 28				10:45	.33	.0002		a. m.				9:00	.01	T	
a. m.				11:00	.33	.0002		2:00	.03	T		10:00	.01	T	
12:30	2.52	.0012	.2286	11:15	.33	.0002		4:00	.03	T		11:00	.01	T	
1:00	2.31	.0011	.2292	12:00	.33	.0002		6:00	.02	T		12:00	.01	T	
3:00	2.02	.0010	.2297	June 29				8:00	.02	T		p. m.			
2:00	1.84	.0009	.2302	2:00	.01	T		9:00	.02	T		2:00	2.63	.0012	.0008
3:00	1.67	.0008	.2306	3:00	.01	T		10:00	.02	T		3:00	2.41	.0011	.0010
3:00	1.59	.0008	.2310	4:00	.01	T		12:00	.01	T		4:00	2.21	.0010	.0012
3:30	1.67	.0008	.2314	5:00	.01	T		p. m.				5:00	2.02	.0010	.0017
4:00	2.02	.0010	.2318	5:00	.01	T		3:00	.01	T		6:00	1.84	.0009	.0025
4:30	2.31	.0011	.2323	5:15	.01	T		4:00	.01	T		7:00	1.51	.0007	.0031
5:00	2.52	.0012	.2329	5:30	.01	T		5:00	.01	T		8:00	1.15	.0005	.0035
5:30	2.63	.0012	.2335	5:45	.01	T		6:00	.01	T		9:00	.92	.0004	.0039
6:00	2.63	.0012	.2341	5:55	.01	T		7:00	.01	T		10:00	.76	.0004	.0043
7:00	2.41	.0011	.2353	6:00	.01	T		8:00	.01	T		11:00	.63	.0003	.0045
8:00	2.11	.0010	.2363	6:15	.01	T		9:00	.01	T		12:00	.52	.0002	.0047
9:00	1.84	.0009	.2373	6:30	.01	T		10:00	.01	T		Aug. 13			
10:00	1.59	.0008	.2381	6:45	.01	T		11:00	.01	T		a. m.			
11:00	1.43	.0007	.2389	6:55	.01	T		12:15	.03	T		1:00	.19	.0001	.0001
12:00	1.22	.0006	.2395	7:00	.01	T		1:15	.03	T		2:00	.15	.0001	.0002
June 29				7:15	.01	T		2:00	0	0	.0110	3:00	.12	.0001	.0003
a. m.				7:30	.01	T		p. m.				4:00	.10	T	
12:30	2.52	.0012	.2395	7:45	.01	T		11:57	0	0	0	5:00	.09	T	



TABLE 25.—Run-off from watershed 8, July 27, 1938, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1939				1940				1940				1940			
Aug. 13	Second-foot	Inches per hour	Inches	June 8	Second-foot	Inches per hour	Inches	June 9	Second-foot	Inches per hour	Inches	June 9	Second-foot	Inches per hour	Inches
a. m.				p. m.				a. m.				p. m.			
8:00-----	0.05	T		8:56-----	0.02	T		4:30-----	9.42	0.0044	0.0034	12:30-----	1.84	0.0009	0.0315
9:00-----	.03	T		:55-----	.01	T		:35-----	10.0	.0048	.0038	1:00-----	1.63	.0008	.0319
10:00-----	.03	T		9:00-----	.01	T		:40-----	10.4	.0050	.0042	:30-----	1.43	.0007	.0323
11:00-----	.02	T		:05-----	T	T		:45-----	10.9	.0052	.0046	2:00-----	1.26	.0006	.0329
:45-----	.02	T		10:00-----	T	T		:50-----	11.4	.0054	.0050	3:00-----	.99	.0005	.0335
				:15-----	0	0	T	:55-----	11.7	.0056	.0055	4:00-----	.81	.0004	.0339
p. m.				June 9				5:00-----	12.0	.0057	.0060	5:00-----	.65	.0003	.0343
12:15-----	.01	T		a. m.				:15-----	12.8	.0061	.0075	6:00-----	.55	.0003	.0346
1:00-----	.01	T		3:04-----	0	0	0	:30-----	13.4	.0064	.0091	7:00-----	.45	.0002	.0348
2:30-----	.01	T		:05-----	.28	.0001		:45-----	13.7	.0065	.0107	8:00-----	.37	.0002	.0350
:45-----	T	T		:06-----	.42	.0002		6:00-----	13.8	.0066	.0123	9:00-----	.30	.0001	.0352
3:00-----	T	T		:07-----	.55	.0003		:15-----	13.7	.0065	.0139	10:00-----	.26	.0001	.0353
:15-----	T	T		:08-----	.63	.0003		:30-----	13.4	.0064	.0155	11:00-----	.21	.0001	.0354
:30-----	T	T		:09-----	.76	.0004		:45-----	12.6	.0060	.0171	12:00-----	.17	.0001	.0355
:45-----	T	T		:10-----	.92	.0004		7:00-----	12.0	.0057	.0185				
4:00-----	0	0	.0003	:11-----	1.03	.0005		:15-----	11.1	.0053	.0199				
1940				:12-----	1.15	.0005		:30-----	10.2	.0048	.0211	June 10			
May 17 <sup>13</sup>				:13-----	1.29	.0006		:45-----	9.30	.0044	.0223	a. m.			
a. m.				:14-----	1.40	.0006		8:00-----	8.36	.0040	.0233	1:06-----	.13	.0001	.0356
4:40-----	0	0	0	:15-----	1.51	.0007	.0001	:15-----	7.58	.0036	.0243	2:00-----	.11	T	
:45-----	T	T		:20-----	2.11	.0010	.0002	:30-----	6.74	.0032	.0251	3:00-----	.09	T	
5:45-----	T	T		:25-----	2.68	.0012	.0003	:45-----	5.97	.0028	.0259	4:00-----	.07	T	
:50-----	0	0	T	:30-----	3.15	.0016	.0004	9:00-----	5.28	.0025	.0265	5:00-----	.06	T	
June 8 <sup>14</sup>				:35-----	3.59	.0017	.0004	:15-----	4.72	.0022	.0271	6:00-----	.04	T	
p. m.				:40-----	3.99	.0019	.0006	:30-----	4.27	.0020	.0276	7:00-----	.03	T	
8:28-----	0	0	0	:45-----	4.57	.0022	.0008	:45-----	3.85	.0018	.0281	8:00-----	.02	T	
:29-----	.04	T		:50-----	5.20	.0025	.0010	10:00-----	3.59	.0017	.0285	9:00-----	.01	T	
:30-----	.05	T		:55-----	5.53	.0026	.0012	:15-----	3.33	.0016	.0289	10:00-----	.01	T	
:35-----	.06	T		4:00-----	6.25	.0030	.0014	:30-----	3.09	.0015	.0293	11:00-----	T	T	
:40-----	.05	T		:05-----	7.05	.0034	.0017	:45-----	2.85	.0014	.0297	p. m.			
:45-----	.03	T		:10-----	7.36	.0035	.0020	11:00-----	2.68	.0012	.0300	2:00-----	T	T	
				:15-----	7.91	.0038	.0023	:15-----	2.52	.0012	.0303	3:00-----	0	0	.0356
				:20-----	8.13	.0039	.0026	:30-----	2.36	.0011	.0306				
				:25-----	8.94	.0044	.0030	:45-----	2.21	.0010	.0308				
								12:00-----	2.11	.0010	.0310				

<sup>1</sup> Total rainfall for storm of Aug. 16-17, 1.13 inches. Surface soil wet and firm from shower of Aug. 15. Corn 36 inches high in straight rows 42 inches apart. Small grains all cut. Stubble 4 inches high. Pasture poor, 2 inches high. Meadow good, 6 inches high.

<sup>2</sup> Total rainfall for storm of Sept. 12-13, 0.68 inch. Surface soil wet and firm from shower of previous days. Corn 36 inches high. Small grains all cut, stubble 4 inches high. Pasture poor, 1 inch high. Meadow cut, stubble 1 inch high.

<sup>3</sup> Runoff caused by melting snow.

<sup>4</sup> Total rainfall for storm of Mar. 11, 0.62 inch. Soil wet before rain. Corn stalks remained standing in fields; grain stubble remained standing; thick covering of Russian thistles in most grain fields. Hay in most meadows remained standing from the previous year. Pastures poor, grass 1 inch high.

<sup>5</sup> Total rainfall for storm of Apr. 4, 1.44 inches. Soil moist before rain. Little change in cover from Mar. 11, except that wheat was 3 inches high.

<sup>6</sup> Total rainfall for storm of May 22, 0.44 inch. Soil moist and firm before rain. Corn had just been planted with lister in straight rows; oats and barley 6 inches high; winter wheat, thin, 7 inches high; meadows had good cover from previous year; pastures were hard and dry, grass 1 inch high.

<sup>7</sup> Total rainfall for storm of June 13, 0.52 inch. Soil moist before rain. Corn, 10 inches high; oats and barley, poor, almost ripe, 12 inches high; wheat poor, almost ripe, 12 inches high; sorghum, recently planted; meadows well covered; pastures poor, grass 1 inch high.

<sup>8</sup> Total rainfall for storms of June 20-21, 1.47 inches. Soil moist before rain. Corn

12 inches high, much of it cultivated the week preceding the rain. Oats, wheat, and barley, 10 to 14 inches high, part harvested. Sorghums sprouted. Meadows well covered; pastures very poor, grass 1 inch high.

<sup>9</sup> Total rainfall for storm of June 25, 0.50 inch. Soil moist before rain. Corn 18 inches high. Little cultivation since storm of June 20-21. All small grains harvested, stubble 4 inches high remained. Sorghums, 4 inches high. Meadows, well covered; pastures poor.

<sup>10</sup> Total rainfall for storm of July 1, 0.50 inch. Soil dry on surface before rain. Corn 24 inches high. Sorghums 5 inches high. Most of corn and sorghums cultivated immediately before rain. Stubble remained from grain crops. Meadows well covered; pastures poor, soil dry and hard.

<sup>11</sup> Total rainfall for storm of July 4-5, 0.19 inch. Soil dry on surface, but moist below, before rain. Little change in crops since July 1.

<sup>12</sup> Total rainfall for storm of Aug. 11-12, 0.53 inch. Soil dry before rain. Corn 36 inches high; sorghums, 24 inches high; stubble remained from small grain crops. Meadows well covered; pastures poor, soil dry and hard.

<sup>13</sup> Total rainfall for storm of May 17, 1.08 inches. Soil moist before rain. Corn being planted. Grain 6 inches high, poor. Soil was well protected by thistles. Pastures and meadows fair.

<sup>14</sup> Total rainfall for storm of June 8-9, 1.16 inches. Soil dry before rain. Corn was 4 inches high. Grain was headed and about 12 inches high. Pastures and meadows were fair.



LOCATION: Latitude  $40^{\circ}12'15''$ , longitude  $98^{\circ}22'01''$ .

*Drainage area.*—5.45 square miles (3,490 acres).  
*Length of principal watercourse.*—38,300 feet (7.25 miles).  
*Topography.*—Undulating, well drained.

*Slope*.—Average slope is 5.2 percent. 20 percent of the watershed has a slope of less than 2 percent; 31 percent, 2 to 5 percent; 34 percent, 5 to 8 percent; 10 percent, 8 to 12 percent; and 5 percent has a slope of 12 percent or more.

*Erosion condition*.—There are occasional gullies on 13 percent of the watershed. Half of the area has lost less than 25 percent of the topsoil and is not gullied. A third, part of which is gullied, has lost 25 to 50 percent of the topsoil. The remainder of the area is more severely eroded.

*Soil*.—Hastings silt loam, 55 percent; Holdrege silt loam, 11 percent; Colby silt loam, 8 percent; Judson-Wabash silt loam complex, 7 percent; other related types, 19 percent.

*Land use distribution.*—Pasture, 20 percent; meadow, 4 percent; cultivated land, 73 percent; other uses, 3 percent.  
*Vegetal cover and soil condition.*—See tables 19 and 20.

*Precipitation.*—Rainfall was measured at 9 recording rain gages, A31R, B28R, B33R, B36R, C24R, C29R (discontinued April 20, 1939), C31R, D31R, E30R, and G42R, and 25 nonrecording rain gages (fig. 1). Snowfall was measured by weighing and recording rain and snow gages and by cooperative observers' measurements. Snow inventory on the watershed was obtained by inspection.

*Run-off.*—Run-off was measured by current meters at medium and high stages and by a precalibrated 1-on-3 broad-crested V-notch weir at low stages. The records are very good. 9 current meter-discharge measurements were made at well distributed points throughout the range of the stage.

*Changes in instrumentation during period.*—Rain gages B28R, B36R, and C24R were installed April 20, 1939, and B33R, August 29, 1939. Rain gages C29R, B37, and C28 were discontinued April 20, 1939, and gages B28R, B36R, and C24R, respectively, were used in their stead.

*Run-off.*—Annual run-off amount 1940, 0.021 inch. Maximum rate of run-off 1939, 0.009 inch per hour, June 21; maximum rate 1940, 0.003 inch per hour, June 22.

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1939				1939				1939				1939			
April 10 <sup>1</sup>				May 20				May 22 <sup>3</sup>				May 22			
a. m.	Second-feet	Inches per hour	Inches	a. m.	Second-feet	Inches per hour	Inches	a. m.	Second-feet	Inches per hour	Inches	a. m.	Second-feet	Inches per hour	Inches
2:27-----	0			5:49-----	0.52	0.0001		2:47-----				11:00-----	1.75	0.0005	0.0184
:28-----	.01	T		:50-----	.76	.0002		:48-----	.12	T		:15-----	1.43	.0004	.0185
:29-----	.06	T		:51-----	1.03	.0003		:49-----	.39	.0001		:30-----	1.15	.0003	.0186
:30-----	.17	T		:52-----	1.36	.0004		:50-----	.55	.0002		12:00-----	.92	.0003	.0188
:35-----	.19	.0001		:53-----	1.51	.0004		:51-----	.72	.0002					
:45-----	.17	T		:55-----	1.67	.0005		:52-----	1.02	.0003		p. m.			
:50-----	.15	T		6:00-----	1.43	.0004		:53-----	1.75	.0005		12:30-----	.76	.0002	.0189
:55-----	.13	T		:05-----	1.03	.0003		:54-----	3.09	.0009		1:00-----	.67	.0002	.0190
3:00-----	.10	T		:10-----	.92	.0003		:55-----	4.42	.0013		:30-----	.59	.0001	.0191
:10-----	.07	T		:15-----	1.03	.0003		:56-----	5.70	.0016		2:00-----	.52	.0001	.0192
:20-----	.05	T		:20-----	1.09	.0003		:57-----	7.69	.0022		:30-----	.45	.0001	
:30-----	.04	T		:25-----	1.15	.0003		:58-----	11.6	.0033		3:00-----	.39	.0001	
:40-----	.03	T		:30-----	1.09	.0003		:59-----	14.3	.0041	.0001	:30-----	.30	.0001	
:50-----	.03	T		:37-----	.98	.0003		3:00-----	16.8	.0048	.0002	4:00-----	.28	.0001	
4:00-----	.03	T		:45-----	1.15	.0003		:01-----	18.8	.0053	.0003	:15-----	.28	.0001	
:04-----	.03	T		:51-----	1.22	.0003		:02-----	21.3	.0061	.0004	:30-----	.30	.0001	.0195
:05-----	.03	T		7:00-----	1.15	.0003		:03-----	22.1	.0063	.0005	5:00-----	.30	.0001	
:06-----	.04	T		:15-----	.86	.0002		:04-----	22.9	.0065	.0006	:15-----	.33	.0001	
:07-----	.05	T		:20-----	.76	.0002		:05-----	23.7	.0067	.0007	:45-----	.36	.0001	.0196
:08-----	.06	T		:30-----	.59	.0002		:10-----	27.0	.0077	.0013	7:15-----	.36	.0001	.0198
:10-----	.07	T		:40-----	.48	.0001		:15-----	25.7	.0073	.0019	8:15-----	.36	.0001	.0199
:11-----	.09	T		:50-----	.36	.0001		:20-----	24.5	.0070	.0025	9:00-----	.33	.0001	.0200
:15-----	.12	T		8:00-----	.28	.0001		:25-----	23.7	.0067	.0031	11:00-----	.28	.0001	.0201
:20-----	.13	T		:15-----	.23	.0001		:30-----	22.5	.0064	.0037				
:25-----	.15	T		:30-----	.19	.0001		:45-----	20.6	.0059	.0053	May 23			
:30-----	.15	T		:45-----	.17	T		4:00-----	18.8	.0053	.0067	a. m.			
:45-----	.13	T		9:00-----	.13	T		:15-----	17.5	.0050	.0080	1:00-----	.23	.0001	.0204
5:00-----	.10	T		:15-----	.10	T		:30-----	15.9	.0045	.0092	3:30-----	.21	.0001	.0206
:20-----	.09	T		:30-----	.09	T		:38-----	15.2	.0043	.0098	7:00-----	.21	.0001	.0210
6:00-----	.07	T		:45-----	.06	T		:40-----	13.5	.0038	.0100	9:30-----	.19	.0001	.0212
:45-----	.06	T		10:00-----	.05	T		:45-----	11.3	.0032	.0103	10:00-----	.13	T	
8:00-----	.04	T		:09-----	.05	T		:50-----	10.1	.0029	.0105				
9:00-----	.03	T		:15-----	.07	T		:55-----	7.47	.0021	.0107				
10:00-----	.03	T		:20-----	.10	T		5:00-----	6.64	.0019	.0109	p. m.			
11:00-----	.02	T		:30-----	.15	T		:10-----	5.53	.0016	.0112	12:30-----	.09	T	
12:00-----	.01	T		:45-----	.17	T		:20-----	5.20	.0015	.0115	3:00-----	.06	T	
				11:00-----	.15	T		:30-----	5.04	.0014	.0117	4:35-----	.04	T	
p. m.				:30-----	.11	T		:45-----	5.36	.0015	.0121	6:00-----	.03	T	
12:15-----	.01	T		12:00-----	.09	T		6:00-----	5.88	.0015	.0125	8:00-----	.02	T	
:45-----	.01	T						:15-----	6.25	.0018	.0129	9:00-----	.02	T	
1:15-----	T	T		p. m.				:25-----	6.25	.0018	.0132	11:15-----	.01	T	
:30-----	T	T		12:30-----	.06	T		:30-----	6.25	.0018	.0134				
2:00-----	T	T		1:00-----	.05	T		7:00-----	5.53	.0016	.0142				
:25-----	0	0	T	:30-----	.03	T		:30-----	4.72	.0013	.0149	May 24			
May 20 <sup>2</sup>				2:00-----	.02	T		8:00-----	3.99	.0011	.0155	a. m.			
a. m.				:15-----	.01	T		:04-----	3.99	.0011	.0156	1:00-----	.01	T	
5:42-----	0	0	0	:30-----	.01	T		:05-----	4.27	.0012		3:00-----	T	T	
:43-----	.06	T		:45-----	.01	T		:06-----	4.88	.0014	.0156	4:00-----	T	T	
:44-----	.21	.0001		3:00-----	.15	T		:30-----	4.57	.0013	.0162	4:45-----	T	T	
:45-----	.19	.0001		:30-----		T		9:00-----	3.85	.0011	.0168	5:10-----	T	T	
:47-----	.19	.0001		:45-----		T		:30-----	3.21	.0009	.0173	5:30-----	0	0	.0212
:48-----	.30	.0001		4:00-----	0	0	0.0006	10:00-----	2.74	.0008	.0177				
								:30-----	2.11	.0006	.0181				

*Central Great Plains Experimental Watershed*



TABLE 26.—Run-off from watershed 11, April 10, 1939, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1939				1939				1939				1939			
May 27 <sup>4</sup>	Second-foot	Inches per hour	Inches	June 2	Second-foot	Inches per hour	Inches	June 13	Second-foot	Inches per hour	Inches	June 21	Second-foot	Inches per hour	Inches
12:14 p. m.	0	0	0	a. m.	T	T	0.0001	12:45 p. m.	T	0	T	12:01 a. m.	3.72	0.0011	0.0031
15	.21	.0001		5:00	T	T		1:15	0	0		11	4.42	.0013	.0033
16	.39	.0001		6:00	0	0						16	4.98	.0015	.0034
17	.39	.0001		30	0	0		June 15 <sup>8</sup>				27	6.06	.0017	.0037
19	.36	.0001						a. m.				35	7.05	.0020	.0039
20	.45	.0001		June 9 <sup>6</sup>				4:07	0	0	0	43	8.13	.0023	.0042
21	.98	.0003		p. m.	0	0	0	.08	.55	.0002		1:00	11.8	.0034	.0050
22	1.84	.0005		9:32	.01	T		.09	.67	.0002		15	13.8	.0039	.0059
23	2.31	.0007		33	.03	T		10	.76	.0002		30	15.5	.0044	.0069
24	2.52	.0007		34	.03	T		12	.92	.0003		2:00	18.5	.0053	.0093
25	2.63	.0007		35	.03	T		15	1.03	.0003		30	21.0	.0060	.0121
26	2.63	.0007		36	.05	T		30	1.15	.0003	.0001	3:00	24.1	.0068	.0155
30	2.31	.0007		37	.06	T		45	1.22	.0003	.0002	30	26.5	.0075	.0189
35	1.84	.0005		40	.05	T		5:00	1.22	.0003	.0003	4:00	30.1	.0086	.0229
40	1.36	.0004		42	.06	T		6:00	1.09	.0003	.0006	5:00	32.9	.0094	.0319
45	.98	.0003		43	.09	T		7:00	1.03	.0003	.0009	15	32.9	.0094	.0343
50	.72	.0002		45	.09	T		8:00	.92	.0003	.0013	6:00	32.4	.0092	.0413
55	.55	.0002		54	.09	T		9:00	.86	.0002	.0014	7:00	29.2	.0083	.0501
1:00	.45	.0001		55	.12	T		11:00	.67	.0002	.0018	8:00	24.5	.0070	.0577
05	.36	.0001		56	.15	T						30	22.1	.0063	.0610
10	.28	.0001		57	.23	.0001		p. m.				9:00	18.8	.0053	.0639
15	.23	.0001		58	.30	.0001		2:00	.52	.0001	.0024	30	16.2	.0046	.0664
20	.21	.0001		59	.39	.0001		5:00	.45	.0001	.0027	10:00	13.8	.0039	.0685
30	.15	T		10:00	.45	.0001		7:00	.33	.0001	.0029	30	11.6	.0033	.0703
45	.12	T		05	.59	.0002		10:00	.28	.0001	.0032	11:00	8.13	.0023	.0717
55	.10	T		10	.55	.0002		12:00	.23	.0001	.0034	30	7.05	.0020	.0728
2:00	.10	T		15	.52	.0001						12:00	5.88	.0017	.0737
15	.13	T		20	.42	.0001		June 16				p. m.			
45	.13	T		25	.33	.0001		a. m.				12:30	5.20	.0015	.0745
3:00	.15	T		30	.28	.0001		2:00	.21	.0001	.0036	1:00	4.57	.0013	.0752
4:00	.12	T		35	.23	.0001		4:30	.17	T		30	3.99	.0011	.0758
30	.10	T		40	.21	.0001		6:30	.13	T		2:00	3.72	.0011	.0764
45	.09	T		45	.19	.0001		11:00	.10	T		3:00	3.09	.0009	.0774
5:00	.06	T		50	.17	T		12:00	.07	T		4:00	2.63	.0007	.0782
30	.05	T		11:00	.15	T		p. m.				5:00	2.21	.0006	.0788
6:00	.04	T		13	.13	T		1:00	.05	T		6:00	1.93	.0005	.0794
7:00	.03	T		20	.15	T		3:00	.03	T		7:00	1.67	.0005	.0799
8:00	.02	T		30	.19	.0001		6:00	.02	T		12	1.67	.0005	.0800
45	.01	T		35	.25	.0001		7:00	.01	T		15	1.84	.0005	
9:30	.01	T		40	.30	.0001		30	.01	T		20	1.67	.0005	.0800
10:30	.01	T		45	.30	.0001		45	.01	T		45	1.59	.0004	.0802
11:15	T	T	.0003	12:00	.28	.0001		8:00	.01	T		55	1.93	.0005	.0803
12:00	T	T						30	.01	T		8:00	2.74	.0008	
May 28				June 10				9:15	T	T		05	3.21	.0009	.0804
a. m.	T	T	T	12:30	.23	.0001		45	T	T		10	3.72	.0011	.0805
12:30	0	0	T	45	.19	.0001		10:15	T	T		15	4.27	.0012	.0806
1:00	0	0	T	1:00	.17	T		45	0	0	.0036	30	5.88	.0017	.0810
June 1 <sup>5</sup>				15	.13	T						45	6.44	.0018	.0814
p. m.	0	0	0	30	.12	T		June 20 <sup>9</sup>				9:00	6.25	.0018	.0818
6:28	.02	T		45	.10	T		p. m.	0	0	0	10:00	4.88	.0014	.0834
29	.06	T		2:00	.09	T		4:21	.17	T		10:40	4.27	.0012	.0843
30	.06	T		30	.06	T		22	.17	T		11:00	4.72	.0013	.0847
31	.21	.0001		3:00	.05	T		28	.17	T		30	6.06	.0017	.0855
32	.33	.0001		4:00	.03	T		30	.21	.0001		12:00	7.05	.0020	.0864
33	.52	.0001		5:00	.02	T		31	.28	.0001					
34	.59	.0002		6:00	.01	T		32	.36	.0001		June 22			
35	.72	.0002		7:00	.01	T		33	.45	.0001		a. m.			
40	.86	.0002		8:00	.01	T		34	.55	.0002		1:00	7.69	.0022	.0885
45	.72	.0002		9:00	.01	T		35	.67	.0002		2:00	8.37	.0024	.0908
50	.59	.0002		10:00	.04	T		36	.81	.0002		3:00	7.05	.0020	.0930
55	.45	.0001		11:00	.05	T	.0002	37	.98	.0003		4:00	5.88	.0017	.0939
7:00	.42	.0001		12:00	.04	T		38	1.09	.0003		5:00	5.04	.0014	.0947
05	.36	.0001		June 12 <sup>7</sup>				39	1.22	.0003		6:00	4.27	.0012	.0953
10	.33	.0001		p. m.	0	0	0	40	1.36	.0004		7:00	3.72	.0011	.0959
15	.28	.0001		9:58	.04	T		45	1.67	.0005		8:00	3.21	.0009	.0969
20	.26	.0001		59	.12	T		50	1.84	.0005		9:00	2.97	.0008	.0977
25	.21	.0001		10:00	.13	T		55	2.31	.0007	.0001	10:00	2.74	.0008	.0985
30	.19	.0001		05	.12	T		5:00	2.74	.0008	.0003	9:00	2.41	.0007	.0993
35	.17	T		15	.12	T		15	2.63	.0007	.0005	10:00	2.11	.0006	.0999
40	.15	T		30	.09	T		30	2.52	.0007	.0009	11:00	1.93	.0005	.1005
45	.13	T		45	.06	T		45	2.21	.0006	.0010	12:00	1.75	.0005	.1010
8:00	.13	T		11:00	.05	T		15	1.75	.0005					
30	.10	T		12:00	.05	T		30	1.43	.0004	.0011	p. m.			
9:00	.09	T		June 13				7:00	1.29	.0004	.0013	12:15	1.75	.0005	.1011
10:00	.06	T		a. m.	.03	T		19	1.22	.0003	.0014	4:00	1.84	.0005	.1030
11:15	.04	T		1:30	.02	T		20	1.09	.0003		5:00	1.67	.0005	.1035
June 2				4:00	.02	T		30	.98	.0003	.0015	9:00	1.22	.0003	.1051
a. m.				6:30	.02	T		45	.76	.0002	.0017	12:00	.98	.0003	.1060
12:30	.03	T		8:00	.01	T		8:00	.59	.0002					
1:00	.02	T		9:00	.01	T		45	.63	.0002		June 23			
30	.02	T		10:00	.01	T		30	.92	.0003	.0018	a. m.			
2:15	.01	T		11:00	.01	T		10:05	1.22	.0003	.0020	3:00	.72	.0002	.1066
45	.01	T		12:00	.01	T		45	1.59	.0004	.0023	6:00	.59	.0002	.1072
3:30	.01	T		45	T	T		11:16	1.93	.0005	.0025	9:00	.48	.0001	.1078
4:15	T	T			T	T		35	2.41	.0007	.0027	12:00	.39	.0001	.1081
								51	3.09	.0009	.0029				

See footnotes at end of table, p. 52



TABLE 26.—Run-off from watershed 11, April 10, 1939, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off					
1939							1939							1939						
June 23							June 26							July 1						
<i>p. m.</i>							<i>a. m.</i>							<i>a. m.</i>						
3:00-----	0.28	0.0001	0.1084	12:30-----	0.02	T		9:00-----	1.15	0.0003	0.0034	1:23-----	0.04	T						
6:00-----	.21	.0001	.1087	4:00-----	.01	T		15-----	.98	.0003	.0035	25-----	.06	T						
9:00-----	.17	T		6:00-----	.01	T		30-----	.81	.0002		27-----	.09	T						
12:00-----	.13	T		9:00-----	.01	T		45-----	.76	.0002		30-----	.12	T						
June 24							11:00-----	T	T		10:00-----	.76	.0002	.0035	35-----	.15	T			
<i>a. m.</i>							12:00-----	T	T		11:00-----	.67	.0002	.0037	40-----	.18	0.0001			
3:00-----	.10	T		<i>p. m.</i>							12:00-----	.55	.0002	.0039	45-----	.23	.0001			
6:00-----	.07	T		1:45-----	T	T		<i>p. m.</i>							50-----	.28	.0001			
9:00-----	.05	T		46-----	T	T		1:00-----	.42	.0002	.0041	55-----	.33	.0001						
12:00-----	.03	T		47-----	.03	T		45-----	.33	.0001	.0042	2:00-----	.42	.0001						
<i>p. m.</i>							48-----	.06	T		2:00-----	.42	.0001	.48	.0001					
1:00-----	.03	T		49-----	.07	T		10-----	.59	.0002		10-----	.52	.0001						
2:00-----	.02	T		50-----	.09	T		20-----	.81	.0002		20-----	.52	.0001						
3:00-----	.02	T		52-----	.12	T		30-----	.98	.0003		25-----	.55	.0002						
4:00-----	.01	T		55-----	.13	T		45-----	1.09	.0003	.0043	45-----	.52	.0001	0.0104					
6:00-----	.01	T		2:00-----	.17	T		3:00-----	1.15	.0003	.0044	25-----	.59	.0002	.0105					
30-----	.01	T		15-----	.19	.0001		4:00-----	1.03	.0003	.0047	4:00-----	.52	.0001	.0106					
7:15-----	T	T		30-----	.21	.0001		5:00-----	.81	.0002	.0049	15-----	.42	.0001						
45-----	T	T		3:00-----	.23	.0001	0.0062	6:00-----	.63	.0002	.0051	30-----	.36	.0001						
8:05-----	T	T		5:00-----	.23	.0001	.0066	7:00-----	.52	.0001	.0053	45-----	.33	.0001						
25-----	0	0	.1087	9:00-----	.19	.0001		8:00-----	.39	.0001	.0054	5:00-----	.36	.0001						
June 25 <sup>10</sup>							June 27							June 28						
<i>a. m.</i>							<i>a. m.</i>							<i>a. m.</i>						
1:17-----	0	0	0	1:00-----	.15	T	T	1:00-----	.55	.0002	.0059	7:00-----	.42	.0001	.0109					
18-----	.03	T		5:00-----	.12	T		11:00-----	.39	.0001	.0056	30-----	.36	.0001						
19-----	.05	T		9:00-----	.09	T		12:00-----	.48	.0001	.0057	8:00-----	.28	.0001	.0111					
20-----	.07	T		12:00-----	.06	T		July 2							9:00-----	.23	.0001			
22-----	.12	T		<i>p. m.</i>							10:00-----	.17	T							
23-----	.15	T		1:30-----	.04	T		1:00-----	.59	.0002	.0061	11:00-----	.13	T						
24-----	.19	.0001		2:20-----	.03	T		2:00-----	.59	.0002	.0065	15-----	.13	T						
25-----	.23	.0001		7:00-----	.02	T		4:00-----	.63	.0002	.0065	30-----	.19	.0001						
26-----	.39	.0001		10:00-----	.01	T		7:00-----	.67	.0002	.0071	45-----	.21	.0001						
27-----	.48	.0001		12:00-----	.01	T	T	9:00-----	.67	.0002	.0075	<i>p. m.</i>								
28-----	.59	.0002		June 28							10:00-----	.72	.0002	.0077	12:45-----	.30	.0001	.0112		
30-----	.76	.0002		5:00-----	.01	T	T	30-----	.76	.0002	.0078	2:00-----	.28	.0001	.0113					
31-----	.92	.0003		9:15-----	T	T		11:00-----	.81	.0002	.0079	3:00-----	.23	.0001	.0114					
32-----	1.22	.0003		10:30-----	T	T		12:00-----	.67	.0002	.0081	4:15-----	.17	T						
33-----	1.43	.0004		45-----	0	0	T	<i>p. m.</i>							6:00-----	.12	T			
34-----	1.75	.0005		July 1 <sup>11</sup>							2:00-----	.59	.0002	.0083	7:00-----	.09	T			
35-----	2.02	.0006		5:21-----	0	0	0	4:00-----	.52	.0001	.0089	8:45-----	.06	T						
37-----	2.52	.0007		22-----	.07	T		6:00-----	.45	.0001	.0091	9:00-----	.04	T						
40-----	3.09	.0009		23-----	.12	T		8:00-----	.39	.0001	.0093	12:00-----	.04	T						
45-----	3.72	.0011	.0001	24-----	.17	T		10:00-----	.33	.0001	.0095	July 6								
50-----	3.99	.0011	.0002	25-----	.21	.0001		July 3				<i>a. m.</i>								
55-----	4.72	.0013	.0003	26-----	.28	.0001		12:30-----	.28	.0001	.0097	4:00-----	.03	T	T					
2:00-----	5.53	.0016	.0004	27-----	.36	.0001		2:30-----	.23	.0001	.0099	8:00-----	.02	T	T					
10-----	7.26	.0021	.0007	28-----	.45	.0001		6:15-----	.19	.0001	.0103	10:00-----	.01	T	T					
15-----	7.47	.0021	.0009	29-----	.48	.0001		9:00-----	.15	T		12:00-----	.01	T						
20-----	7.47	.0021	.0011	30-----	.52	.0001		12:00-----	.12	T		<i>p. m.</i>								
30-----	6.84	.0019	.0014	31-----	.63	.0002		<i>p. m.</i>				3:00-----	.01	T	T					
40-----	6.06	.0017	.0017	32-----	.72	.0002		1:00-----	.09	T		5:00-----	T	T	T					
50-----	5.53	.0016	.0020	33-----	.81	.0002		6:00-----	.06	T		8:30-----	T	T	T					
3:00-----	5.36	.0015	.0023	34-----	.98	.0003		9:00-----	.04	T		11:00-----	T	T						
15-----	4.88	.0014	.0027	35-----	1.15	.0003		July 4				July 7								
30-----	4.27	.0012	.0030	36-----	1.59	.0004		<i>a. m.</i>				<i>a. m.</i>								
45-----	3.72	.0011	.0033	37-----	1.93	.0005		2:00-----	.03	T		1:30-----	0	0	.0114					
4:00-----	3.21	.0009	.0035	38-----	2.21	.0006		8:00-----	.02	T		Aug. 1 <sup>12</sup>								
15-----	2.63	.0007	.0037	39-----	2.52	.0007		<i>p. m.</i>				<i>p. m.</i>								
30-----	2.11	.0006	.0039	40-----	2.97	.0008		2:00-----	.01	T		8:06-----	0	0	0					
45-----	1.84	.0005	.0041	42-----	3.46	.0010		8:00-----	.01	T		7-----	.03	T	T					
5:00-----	1.43	.0004	.0042	45-----	3.99	.0011	.0001	9:00-----	.01	T		7:08-----	.05	T	T					
15-----	1.22	.0003	.0043	50-----	5.04	.0014	.0002	11:48-----	.01	T		10-----	.05	T	T					
30-----	1.09	.0003	.0044	6:00-----	5.53	.0016	.0003	49-----	.01	T		15-----	.03	T	T					
45-----	1.03	.0003	.0045	10-----	6.64	.0019	.0006	50-----	.02	T		20-----	.03	T	T					
6:00-----	.98	.0003	.0046	20-----	6.64	.0019	.0009	51-----	.03	T		30-----	.03	T	T					
7:45-----	.98	.0003	.0048	25-----	6.64	.0019	.0011	52-----	.03	T		10:00-----	.02	T						
8:00-----	.98	.0003	.0052	30-----	6.44	.0018	.0013	55-----	.03	T		12:00-----	.02	T						
9:00-----	.72	.0002	.0054	40-----	5.36	.0015	.0016	12:00-----	.03	T		Aug. 2								
10:00-----	.52	.0001	.0056	50-----	4.57	.0013	.0018	July 5				<i>a. m.</i>								
30-----	.42	.0001		7:00-----	3.85	.0011	.0020	<i>a. m.</i>				4:00-----	.01	T	T					
11:00-----	.39	.0001		10-----	3.31	.0009	.0022	12:05-----	.02	T		6:00-----	.01	T	T					
30-----	.33	.0001		20-----	2.97	.0008	.0023	15-----	.02	T		9:00-----	.01	T						
12:00-----	.28	.0001		30-----	2.85	.0008	.0024	30-----	.02	T		<i>p. m.</i>								
<i>p. m.</i>							45-----	2.74	.0008	.0026	1:00-----	T	T							
12:30-----	.23	.0001		8:00-----	2.52	.0007	.0028	15-----	.01	T		1:00-----	T	T						
1:00-----	.19	.0001		15-----	2.11	.0006	.0030	2:42-----	.02	T		2:42-----	T	T						
3:00-----	.17	T		30-----	1.75	.0005	.0032	20-----	.02	T		4:30-----	0	0	T					
2:00-----	.13	T		45-----	1.43	.0004	.0033	21-----	.03	T										
3:00-----	.12	T																		
4:00-----	.09	T																		
5:00-----	.06	T																		
6:30-----	.04	T																		
10:00-----	.03	T																		
12:00-----	.02	T																		

See footnotes at end of table, p. 52.



TABLE 26.—Run-off from watershed 11, April 10, 1939, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off
1939			1939			1939			1940		
Aug. 7 <sup>13</sup>			Aug. 8			Aug. 15			Mar. 4		
a. m.	Second-foot	Inches per hour	a. m.	Second-foot	Inches per hour	a. m.	Second-foot	Inches per hour	a. m.	Second-foot	Inches per hour
2:54	0	0	1:15	.03	T	12:30	0.26	0.0001	3:00	0.02	T
:55	T	T	:30	.02	T	:35	.33	.0001	4:00	.01	T
:56	.01	T	2:00	.02	T	:40	.39	.0001	8:00	.01	T
3:03	.01	T	4:00	.01	T	:45	.39	.0001	9:00	T	T
:10	T	T	6:00	.01	T	:50	.39	.0001			
:55	T	T	8:00	.01	T	:55	.36	.0001	p. m.		
4:00	T	T	11:00	T	T	1:00	.33	.0001	3:00	T	T
:38	T	T	:45	T	T	:10	.39	.0001	4:00	.01	T
:42	T	T				:20	.48	.0001	:43	.01	T
:44	.01	T	p. m.			:30	.55	.0002	:45	.02	T
:45	.01	T	12:30	T	T	:35	.59	.0002	:50	.01	T
:47	.01	T	1:45	0	0	:45	.55	.0002	6:00	.01	T
:50	T	T			0.0003	2:00	.48	.0001	:30	.02	T
:55	.01	T	Aug. 11 <sup>14</sup>			:15	.42	.0001	7:45	.02	T
5:05	T	T	p. m.			:30	.39	.0001	8:00	.01	T
:20	T	T	10:11	0	0	:45	.36	.0001			
:22	T	T	:12	.05	T	3:00	.36	.0001	Mar. 5 <sup>15</sup>		
:25	.01	T	:13	.07	T	:30	.28	.0001	a. m.		
:26	.01	T	:14	.07	T	4:00	.21	.0001	2:00	.01	T
:27	.02	T	:15	.09	T	:30	.15	T	3:00	T	T
:28	.03	T	:17	.12	T	5:00	.12	T	4:00	T	T
:29	.03	T	:18	.21	.0001	:30	.09	T	5:00	.01	T
:30	.04	T	:20	.21	.0001	6:00	.06	T	6:00	.01	T
:31	.07	T	:32	.21	.0001	:30	.05	T	7:00	.02	T
:34	.10	T	:33	1.15	.0003	7:00	.03	T	8:00	.02	T
:35	.12	T	:37	1.22	.0003	:45	.03	T	:30	.02	T
:36	.15	T	:45	1.09	.0003	9:00	.02	T	9:00	.01	T
:37	.19	.0001	:50	1.15	.0003	:30	.01	T	10:00	.01	T
:38	.23	.0001	11:00	1.09	.0003	10:00	.01	T	11:00	T	T
:40	.23	.0001	:05	1.22	.0003				12:00	T	T
:45	.19	.0001	:10	1.51	.0004	p. m.					
:47	.17	T	:15	1.75	.0005	1:00	.01	T	p. m.		
:50	.23	.0001	:20	1.93	.0005	4:00	T	T	1:00	.01	T
:52	.30	.0001	:25	2.02	.0006	8:00	T	T	:45	.01	T
:55	.30	.0001	:28	2.02	.0006	11:00	0	0	:50	.02	T
6:00	.30	.0001	:30	2.02	.0006			0.0004	:55	.03	T
:05	.28	.0001	:45	1.75	.0005				2:00	.03	T
:10	.23	.0001	12:00	1.43	.0004	1940			:05	.02	T
:15	.17	T			.0005	Mar. 1 <sup>17</sup>			5:35	.02	T
:20	.13	T	Aug. 12		.0006	a. m.			:40	.04	T
:25	.10	T	12:15	1.29	.0004	9:30	0	0	:45	.07	T
:30	.07	T	:45	1.29	.0004	11:00	T	T	:50	.08	T
:35	.05	T	1:00	1.15	.0003	:10	0	0	:55	.08	T
:40	.04	T	:15	1.03	.0003			T	6:00	.07	T
:45	.03	T	:30	.92	.0003	p. m.			:15	.04	T
:50	.02	T	:45	.76	.0002	11:12	0	0	:30	.03	T
:55	.02	T	2:00	.63	.0002	:15	T	T	:45	.02	T
7:00	.01	T	:15	.52	.0001	12:00	T	T	7:00	.02	T
:10	.01	T	:30	.45	.0001			T	:15	.02	T
:20	.01	T	:45	.42	.0001	Mar. 2			:30	.01	T
:30	T	T	3:00	.36	.0001	a. m.			:45	.01	T
:54	.01	T	:15	.33	.0001	12:30	T	T	8:00	.03	T
:57	.01	T	:30	.28	.0001	1:00	.01	T	:15	.03	T
8:00	.01	T	:45	.26	.0001	5:00	.01	T	:30	.02	T
:04	.02	T	4:00	.21	.0001	6:00	.02	T	9:00	.01	T
:06	.03	T	:15	.17	T	7:00	.02	T	10:00	.01	T
:07	.04	T	5:45	.12	T	:30	.01	T	11:00	T	T
:08	.04	T	6:45	.07	T	10:00	.01	T	12:00	T	T
:10	.05	T	8:00	.04	T	11:00	T	T			
:15	.07	T	9:10	.03	T				Mar. 6 <sup>16</sup>		
:17	.12	T	:13	.02	T	Mar. 3			a. m.		
:18	.15	T	:15	.01	T	a. m.			7:00	T	0
:19	.19	.0001	11:30	T	T	3:30	T	T	8:00	0	0
:20	.21	.0001				:45	0	0			T
:22	.26	.0001	p. m.					T	Mar. 6 <sup>16</sup>		
:25	.30	.0001	12:45	T	T				p. m.		
:30	.33	.0001	2:00	T	T	4:45 <sup>16</sup>	0	0	3:27	0	0
:40	.28	.0001	6:30	0	0	:50	T	T	:30	T	T
:50	.33	.0001			.0015	5:20	.01	T	10:00	T	T
10:00	.36	.0001	Aug. 14 <sup>15</sup>			:25	.01	T	11:00	0	0
:15	.33	.0001	p. m.			:45	.01	T			
:30	.28	.0001	11:54	0	0	:50	.02	T	Mar. 7 <sup>16</sup>		
:45	.26	.0001	:55	.01	T	6:15	.03	T	a. m.		
11:00	.21	.0001	:56			:30	.03	T	11:33	0	0
:35	.15	T	Aug. 15			:45	.04	T	:35	T	T
:50	.12	T	a. m.			7:00	.04	T			
12:00	.10	T	12:17	T	T	:30	.05	T	p. m.		
			:18	.01	T	8:00	.05	T	12:40	T	T
Aug. 8			:19	.04	T	9:00	.05	T	:50	.01	T
a. m.			:20	.12	T	10:00	.04	T	:15	.01	T
12:15	.07	T	:21	.15	T	11:00	.04	T	:30	T	T
:30	.05	T	:22	.21	.0001	12:00	.03	T	5:00	T	T
:45	.04	T	:23	.23	.0001				:30	.01	T
1:00	.03	T	:25	.23	.0001	Mar. 4 <sup>16</sup>			7:30	.01	T

See footnotes at end of table, p. 52.



TABLE 26.—Run-off from watershed 11, April 10, 1939, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
	Second-foot	Inches per hour	Inches		Second-foot	Inches per hour	Inches		Second-foot	Inches per hour	Inches		Second-foot	Inches per hour	Inches
<b>1940</b>															
Mar. 8 <sup>16</sup>				Mar. 16				Mar. 18				Apr. 22			
a. m.				p. m.				p. m.				p. m.			
4:00-----	T		T	8:00-----	0.04	T		8:45-----	0.89	0.0003	0.0011	3:15-----	0	0	0
5:00-----	0	0		9:00-----	.02	T		9:00-----	.76	.0002		3:20-----	T	T	
Mar. 8 <sup>16</sup>				10:00-----	.02	T		3:30-----	.63	.0002	.0012	3:25-----	T	T	
p. m.				11:00-----	.01	T		10:00-----	.52	.0001	.0013	3:30-----	T <sup>.01</sup>	T	
12:39-----	0	0	0	12:00-----	.01	T		3:30-----	.39	.0001	.0014	3:35-----	T	T	
4:00-----	T	T		Mar. 17				11:00-----	.28	.0001		12:00-----	T	T	
10:00-----	T	T		a. m.				3:30-----	.21	.0001		Apr. 23			
11:00-----	0	0	T	1:00-----	.01	T		12:00-----	.17	T	.0015	a. m.			
Mar. 9 <sup>16</sup>				2:00-----	.01	T		Mar. 19 <sup>16</sup>				1:00-----	T	T	
a. m.				3:00-----	T	T		a. m.				2:00-----	0	0	T
11:30-----	0	0	0	8:30-----	T	T	T	12:30-----	.13	T		May 17 <sup>21</sup>			
3:1-----	T	T		9:00-----	0	0	T	1:00-----	.11	T		a. m.			
p. m.				Mar. 17 <sup>16</sup>				3:00-----	.09	T		2:18-----	0	0	0
3:40-----	T	T		p. m.				2:00-----	.07	T		2:19-----	T	T	
4:45-----	.01	T		1:36-----	0	0	0	3:00-----	.07	T		2:20-----	.01	T	
4:00-----	.01	T		1:37-----	T	T		3:30-----	.06	T		2:20-----	T	T	
4:15-----	.01	T		1:38-----	.01	T		4:00-----	.04	T		2:25-----	.01	T	
4:30-----	.02	T		2:00-----	.01	T		4:30-----	.03	T		2:30-----	.01	T	
7:00-----	.02	T		2:15-----	.02	T		5:00-----	.02	T		2:35-----	T	T	
8:00-----	.01	T		3:00-----	.02	T		6:00-----	.01	T		3:50-----	.01	T	
9:00-----	.01	T		3:45-----	.03	T		7:00-----	.01	T		4:00-----	.01	T	
11:00-----	T	T		3:00-----	.03	T		8:00-----	.01	T		4:05-----	.01	T	
Mar. 10 <sup>16</sup>				3:30-----	.04	T		9:00-----	T	T		4:10-----	.02	T	
a. m.				4:00-----	.05	T		12:00-----	T	T	.0015	4:15-----	.03	T	
3:00-----	T	T	T	5:00-----	.05	T		1:00-----	T	T	T	4:20-----	.03	T	
3:30-----	0	0	T	6:00-----	.04	T		2:30-----	T	T		4:25-----	.04	T	
Mar. 15 <sup>16</sup>				7:00-----	.05	T		3:00-----	.01	T		4:30-----	.08	T	
p. m.				8:00-----	.03	T		3:30-----	.02	T		4:35-----	.13	T	
3:13-----	0	0	0	8:30-----	.03	T		4:00-----	.03	T		4:40-----	.18	.0001	
3:14-----	T	T		9:00-----	.02	T		4:30-----	.03	T		4:45-----	.19	.0001	
3:15-----	.01	T		10:00-----	.02	T		5:00-----	.04	T		4:50-----	.19	.0001	
3:20-----	.02	T		11:00-----	.02	T		6:00-----	.04	T		4:55-----	.23	.0001	
3:25-----	.02	T		12:00-----	.01	T		7:00-----	.03	T		5:00-----	.27	.0001	
3:30-----	.03	T		Mar. 18 <sup>16</sup>				8:00-----	.03	T		5:05-----	.28	.0001	
3:35-----	.03	T		a. m.				9:00-----	.02	T		5:10-----	.30	.0001	
3:40-----	.04	T		2:00-----	.01	T		10:00-----	.02	T		5:15-----	.45	.0001	
3:45-----	.04	T		3:00-----	T	T		11:00-----	.01	T		5:20-----	.67	.0002	
4:00-----	.03	T		4:00-----	.01	T		12:00-----	.01	T		5:25-----	.92	.0003	
4:15-----	.02	T		5:00-----	.09	T		Mar. 20 <sup>16</sup>				5:30-----	1.09	.0003	
4:30-----	.02	T		6:00-----	.08	T		a. m.				5:35-----	1.18	.0003	
4:45-----	.03	T		7:00-----	.09	T		1:00-----	.01	T		5:40-----	1.22	.0003	
5:00-----	.06	T		8:00-----	.09	T		2:00-----	T	T		5:45-----	1.22	.0003	.0002
5:15-----	.06	T		9:00-----	.09	T		3:00-----	0	0	T	5:50-----	.98	.0003	.0003
5:30-----	.07	T		10:00-----	.13	T		4:00-----	0	0		5:55-----	.95	.0003	.0004
6:00-----	.07	T		11:00-----	.17	T		5:00-----	.01	T		6:00-----	.95	.0003	.0005
6:15-----	.08	T		12:00-----	.21	.0001		6:00-----	.04	T		6:05-----	.86	.0002	.0006
6:30-----	.06	T		1:00-----	.28	.0001		7:00-----	.03	T		6:10-----	.79	.0002	.0007
6:45-----	.04	T		2:00-----	.39	.0001		8:00-----	.03	T		6:15-----	.72	.0002	.0008
7:00-----	.03	T		2:15-----	.57	.0002		9:00-----	.01	T		6:20-----	.59	.0002	
7:15-----	.02	T		2:25-----	.86	.0002		10:00-----	T	T		6:25-----	.50	.0001	
7:30-----	.04	T		3:00-----	1.18	.0003		12:00-----	0	0	0	6:30-----	.42	.0001	
7:45-----	.05	T		3:15-----	1.47	.0004		Apr. 8 <sup>16</sup>				6:35-----	.34	.0001	
8:00-----	.06	T		3:30-----	1.67	.0005		p. m.				6:40-----	.28	.0001	
8:15-----	.07	T		4:00-----	1.80	.0005		1:45-----	0	0	0	6:45-----	.24	.0001	
8:30-----	.09	T		4:30-----	1.98	.0006		2:00-----	T	T		6:50-----	.22	.0001	
8:45-----	.10	T		5:00-----	2.02	.0006		2:30-----	.01	T		6:55-----	.20	.0001	
9:00-----	.11	T		5:30-----	2.02	.0006		3:00-----	.01	T		7:00-----			
9:15-----	.12	T		6:00-----	1.98	.0006		3:30-----	0	0	0	7:05-----	T	T	.0012
9:30-----	.12	T		6:15-----	1.75	.0005	.0006	4:00-----	0	0	0	7:10-----	T	T	
9:45-----	.11	T		6:30-----	1.47	.0004	.0007	4:30-----	T	T		7:15-----	0	0	
10:00-----	.09	T		6:45-----	1.29	.0004	.0008	5:00-----	0	0	0	7:20-----	T	T	
10:15-----	.06	T		7:00-----	1.12	.0003	.0009	5:30-----	0	0	0	7:25-----	0	0	0
Mar. 16				7:15-----	1.00	.0003	.0010	6:00-----	T	T	T	7:30-----	T	T	
a. m.				7:30-----				6:15-----	0	0		7:35-----	0	0	T
2:30-----	T	T	T	7:45-----				6:30-----	0	0		7:40-----	0	0	T
3:00-----	0	0	T	7:50-----				6:45-----	0	0		7:45-----	0	0	T
Mar. 16 <sup>16</sup>				8:00-----				7:00-----	0	0		7:50-----	0	0	T
a. m.				8:15-----				7:15-----	0	0		7:55-----	0	0	T
10:49-----	0	0	0	8:30-----				7:30-----	0	0		8:00-----	0	0	T
1:50-----	T	T		8:45-----				7:45-----	0	0		8:05-----	0	0	T
p. m.				9:00-----				7:50-----	0	0		8:10-----	0	0	T
1:10-----	T	T		9:15-----				8:00-----	0	0		8:15-----	0	0	T
1:15-----	.01	T		9:30-----				8:15-----	0	0		8:20-----	0	0	T
1:20-----	.03	T		9:45-----				8:30-----	0	0		8:25-----	0	0	T
1:25-----	.04	T		10:00-----				8:45-----	0	0		8:30-----	0	0	T
1:30-----	.05	T		10:15-----				8:50-----	0	0		8:35-----	0	0	T
1:35-----	.06	T		10:30-----				9:00-----	0	0		8:40-----	0	0	T
1:40-----	.07	T		10:45-----				9:15-----	0	0		8:45-----	0	0	T
1:45-----	.09	T		11:00-----				9:30-----	0	0		8:50-----	0	0	T
1:50-----	.10	T		11:15-----				9:45-----	0	0		8:55-----	0	0	T
1:55-----	.11	T		11:30-----				10:00-----	0	0		9:00-----	0	0	T
2:00-----	.12	T		11:45-----				10:15-----	0	0		9:05-----	0	0	T
2:05-----	.12	T		12:00-----				10:30-----	0	0		9:10-----	0	0	T
2:10-----	.11	T		12:05-----				10:45-----	0	0		9:15-----	0	0	T
2:15-----	.09	T		12:10-----				11:00-----	0	0		9:20-----	0	0	T
2:20-----	.09	T		12:15-----				11:15-----	0	0		9:25-----	0	0	T
2:25-----	.10	T		12:20-----				11:30-----	0	0		9:30-----	0	0	T
2:30-----	.11	T		12:25-----				11:45-----	0	0		9:35-----	0	0	T
2:35-----	.12	T		12:30-----				12:00-----	0	0		9:40-----	0	0	T
2:40-----	.12	T		12:35-----				12:05-----	0	0		9:45-----	0	0	T
2:45-----	.11	T		12:40-----				12:10-----	0	0		9:50-----	0	0	T
2:50-----	.09	T		12:45-----				12:15-----	0	0		9:55-----	0	0	T
2:55-----	.06	T		12:50-----				12:20-----	0	0		10:00-----	0	0	T
3:00-----	.06	T		12:55-----				12:25-----	0	0		10:05-----	0	0	T
3:05-----	.07	T		13:00-----				12:30-----	0	0		10:10-----	0	0	T
3:10-----	.09	T		13:05-----				12:35-----	0	0		10:15-----	0	0	T
3:15-----	.10	T		13:10-----				12:40-----	0	0		10:20-----	0	0	T
3:20-----	.11	T		13:15-----				12:45-----	0	0		10:25-----	0	0	T
3:25-----	.12	T		13:20-----				12:50-----	0	0		10:30-----	0	0	T
3:30-----	.11	T		13:25-----				12:55-----	0	0		10:35-----	0	0	T
3:35-----	.09	T		13:30-----				13:00-----	0	0		10:40-----	0	0	T
3:40-----	.06	T		13:35-----				13:05-----	0	0		10:45-----	0	0	T
3:45-----	.06	T		13:40-----				13:10-----	0	0		10:50-----	0	0	T
3:50-----	.09	T		13:45-----				13:15-----	0	0		10:55-----	0	0	T
3:55-----	.11	T													



TABLE 26.—Run-off from watershed 11, April 10, 1939, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1940				1940				1940				1940			
June 8 <sup>23</sup>				June 9				June 22				June 23			
p. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches
8:23	0	0	0	1:00	0.89	0.0003	0.0041	6:26	0.55	0.0002		4:30	0.06	T	
24	.04	T		2:00	.86	.0003	.0043	27	1.09	.0003		5:00	.04	T	
25	.05	T		3:00	.76	.0002	.0045	28	1.43	.0004		5:30	.03	T	
26	.06	T		4:00	.74	.0002	.0047	29	1.93	.0005		6:00	.02	T	
27	.06	T		5:00	.72	.0002	.0049	30	2.31	.0007		6:30	.01	T	
28	.07	T		6:00	.67	.0002	.0051	31	2.85	.0008		7:00	.01	T	
29	.09	T		7:00	.61	.0002	.0053	32	3.33	.0009		8:00	.01	T	
30	.09	T		8:00	.57	.0002	.0055	33	3.59	.0011		9:00	.01	T	
31	.10	T		9:00	.52	.0001	.0057	34	3.85	.0011		10:00	T	T	
32	.28	.0001		10:00	.45	.0001	.0059	35	3.99	.0011		p. m.			
33	.67	.0002		11:00	.42	.0001	.0061	37	4.27	.0012		3:00	T	T	
34	.98	.0003		12:00	.37	.0001	.0063	40	4.27	.0012		4:00	0	0	0.0049
35	1.15	.0003						45	4.27	.0012	0.0003				
36	1.29	.0004		June 10				47	4.27	.0012					
37	1.47	.0004		a. m.				50	3.72	.0011		July 27 <sup>25</sup>			
38	1.75	.0005		12:30	.37	.0001	T	51	3.59	.0010		a. m.			
39	2.21	.0006		1:00	.43	.0001		55	3.59	.0010	.0005	3:00	0	0	0
40	2.85	.0008		15	.52	.0001		7:00	3.59	.0010	.0006	3:05	T	T	
41	3.33	.0009		30	.65	.0002		10	3.59	.0010	.0007	7:30	T	T	
42	3.59	.0010		45	.81	.0002		15	3.59	.0010	.0008	8:00	0	0	T
43	3.72	.0011		2:00	.92	.0003		16	3.59	.0010	.0009				
44	3.72	.0011		3:00	1.12	.0003	.0002	17	3.72	.0011		Aug. 12 <sup>26</sup>			
45	3.66	.0010		4:00	1.24	.0004	.0004	18	4.13	.0012		a. m.			
46	3.52	.0010		5:00	1.36	.0004	.0008	19	4.88	.0014		7:34	0	0	0
47	3.33	.0009		6:00	1.36	.0004	.0016	20	6.06	.0017		35	T	T	
48	3.09	.0009		7:00	1.29	.0004	.0020	21	7.69	.0022		p. m.			
49	2.85	.0008		8:00	1.22	.0003	.0024	22	9.16	.0026		2:00	T	T	
50	2.63	.0007		9:00	1.15	.0003	.0027	23	10.0	.0028		3:00	0	0	T
51	2.41	.0007		10:00	1.03	.0003	.0030	24	9.86	.0028	.0012				
52	2.11	.0006		11:00	.95	.0003	.0033	25	9.72	.0028		Sept. 22 <sup>27</sup>			
53	1.93	.0005		12:00	.86	.0002	.0035	30	9.16	.0026	.0014	11:55	0	0	0
54	1.80	.0005						35	8.89	.0025	.0016	12:00	T	T	T
55	1.67	.0005		p. m.				40	8.63	.0025	.0018				
56	1.51	.0004		1:00	.81	.0002	.0037	45	8.13	.0023	.0020	Sept. 23			
57	1.40	.0004		2:00	.74	.0002	.0039	50	7.26	.0021	.0022	a. m.			
58	1.36	.0004		3:00	.67	.0002	.0041	55	6.64	.0019	.0024	12:05	0	0	0
59	1.24	.0004		4:00	.61	.0002	.0043	8:00	5.88	.0017	.0026	7:00	T	T	
9:00	1.22	.0003		5:00	.57	.0002	.0045	10	5.20	.0015	.0027	8:00	0	0	T
10	.95	.0003		7:00	.50	.0001	.0048	15	4.72	.0013	.0028	Sept. 24 <sup>28</sup>			
13	.92	.0003		9:00	.43	.0001	.0050	20	4.27	.0012	.0029	a. m.			
15	1.03	.0003		11:00	.37	.0001	.0052	25	3.85	.0011	.0030	12:05	T	T	0
17	1.22	.0003		12:00	.35	.0001	.0053	30	3.46	.0010	.0031	7:00	T	T	
20	1.67	.0005		June 11				35	3.21	.0009	.0032	8:00	0	0	T
23	2.11	.0006		a. m.				40	2.91	.0008	.0033	Sept. 24 <sup>28</sup>			
25	2.41	.0007		1:00	.33	.0001	.0002	45	2.74	.0008	.0034	a. m.			
30	2.91	.0008	.0006	3:00	.30	.0001	.0004	50	2.52	.0007	.0035	2:28	0	0	0
35	3.03	.0009	.0007	5:00	.26	.0001	.0006	55	2.31	.0007	.0036	29	T	T	
40	2.97	.0008	.0008	7:00	.23	.0001	.0008	9:00	1.93	.0005		7:00	T	T	
45	2.85	.0008	.0009	9:00	.18	.0001	.0010	10	1.84	.0005		9:00	0	0	T
50	2.74	.0008	.0010	11:00	.17	T		15	1.75	.0005		Oct. 1 <sup>29</sup>			
55	2.52	.0007	.0011					20	1.59	.0004		a. m.			
10:00	2.36	.0007	.0012	p. m.				25	1.55	.0004		7:29	0	0	0
15	2.11	.0006	.0014	1:00	.14	T		30	1.47	.0004		30	T	T	
30	2.06	.0006	.0016	3:00	.12	T		35	1.40	.0004		10:00	T	T	
45	1.88	.0005	.0018	5:00	.09	T		40	1.36	.0004		11:00	0	0	T
11:00	1.71	.0005	.0019	7:00	.08	T		45	1.29	.0004		Oct. 2 <sup>30</sup>			
15	1.51	.0004	.0020	9:00	.06	T		50	1.26	.0004		a. m.			
30	1.36	.0004	.0021	11:00	.04	T		55	1.22	.0003		7:00	0	0	0
45	1.26	.0004	.0022	12:00	.04	T	.0010	10:00	1.15	.0003		10:05	T	T	
12:00	1.18	.0003	.0023	June 12				15	1.09	.0003	.0041	11:00	0	0	T
June 9				a. m.				30	1.03	.0003	.0042	12:00	0	0	T
1:00	1.18	.0003	.0003	1:00	.03	T	T	45	.98	.0003	.0043	Oct. 10 <sup>31</sup>			
3:00	1.22	.0003	.0005	3:00	.02	T		50	.98	.0003	.0044	p. m.			
5:00	1.15	.0003	.0007	5:00	.02	T		11:00	.89	.0003		12:15	0	0	0
7:00	1.09	.0003	.0009	7:00	.01	T		15	.81	.0002		2:00	T	T	
9:00	.99	.0003	.0011	9:00	.01	T		30	.74	.0002		4:00	0	0	T
11:00	.99	.0002	.0013	11:00	.01	T		45	.67	.0002		5:00	0	0	T
1:00	.63	.0002	.0015					50	.63	.0002		Nov. 8 <sup>32</sup>			
3:00	.63	.0002	.0016	p. m.				55	.63	.0002		a. m.			
5:00	.69	.0002	.0017	1:00	T	T		10:00	1.15	.0003		7:00	0	0	0
7:00	.86	.0002	.0018	3:00	T	T		15	1.09	.0003	.0041	10:05	T	T	
9:00	1.06	.0003	.0019	5:00	0	0	T	30	1.03	.0003	.0042	11:00	0	0	T
11:00	1.24	.0004	.0021	7:00	.01	T		45	.98	.0003	.0043	12:00	0	0	T
1:00	1.36	.0004	.0023	9:00	.01	T		50	.98	.0003	.0044	Oct. 10 <sup>31</sup>			
3:00	1.36	.0004	.0025	11:00	.01	T		11:00	.89	.0003		p. m.			
5:00	1.32	.0004	.0027					15	.81	.0002		12:15	0	0	0
7:00	1.24	.0004	.0031	June 22 <sup>24</sup>				30	.74	.0002		2:00	T	T	
9:00	1.12	.0003	.0035	p. m.				45	.67	.0002		4:00	0	0	T
11:00	.98	.0003	.0038	6:20	0	0	0	50	.63	.0002		5:00	0	0	T
12:00				7:20	.10	T		55	.63	.0002		Nov. 9			
				8:20	.13	T		10:00	1.15	.0003		a. m.			
				9:20	.17	T		15	1.09	.0003	.0041	7:00	0	0	0
				10:20	.28	.0001		30	1.03	.0003	.0042	10:05	T	T	
				11:20	.39	.0001		45	.98	.0003	.0043	11:00	0	0	T
				12:20				50	.98	.0003	.0044	12:00	0	0	T

<sup>1</sup> Total rainfall for storm of Apr. 10, 0.47 inch. Soil wet before rain. Corn stalks and grain stubble standing in fields. Thick covering of Russian thistles in most of the stubble fields. Hay in most of the meadows standing from previous years. Pastures, very little cover. Wheat fields were green, wheat 3 inches high.

<sup>2</sup> Total rainfall for storm of May 20, 0.83 inch. Soil dry before rain. Corn had just been planted with lister in straight rows. Oats and barley 6 inches high. Winter wheat, thin, 7 inches high. Meadows had good cover from previous year. Pastures were hard and dry, grass 1 inch high.

<sup>3</sup> Total rainfall for storm of May 22-24, 0.51 inch. Soil moist and firm before rain. Little change in cover from May 20.

<sup>4</sup> Total rainfall for storm of May 27-28, 0.46 inch. Soil moist and firm before rain. Little change in cover from May 20.

<sup>5</sup> Total rainfall for storm of June 1-2, 0.42 inch. Soil moist and firm before rain. Little change in cover from May 20.

<sup>6</sup> Total rainfall for storm of June 9-10, 0.41 inch. Soil moist and firm before rain. Corn, 10 inches high; oats and barley ripening, 12 inches high. Wheat, poor, almost ripe, 12 inches high. Sorghums, recently planted. Meadows, well covered. Pastures, poor, 1 inch high.

<sup>7</sup> Total rainfall for storm of June 12-13, 0.31 inch. Soil moist and firm before rain. Little change in cover since June 9-10. (Footnotes continued on next page.)



TABLE 27.—Run-off from watershed 5, June 20, 1939, to December 31, 1940

LOCATION: Latitude 40°14'41", longitude 98°21'48".

## PHYSICAL CHARACTERISTICS:

*Drainage area.*—0.64 square mile, 411 acres.*Length of principal watercourse.*—7,560 feet, 1.43 miles.*Topography.*—Undulating, well drained.*Slope.*—Average slope is 5.9 percent; 14 percent of the watershed has a slope of less than 2 percent; 25 percent, 2 to 5 percent; 43 percent, 5 to 8 percent; 9 percent, 8 to 12 percent, and 9 percent has a slope of 12 percent or more.*Erosion condition.*—There are occasional gullies on 7 percent of the watershed; 46 percent of the area has lost less than 25 percent of the topsoil and is not gullied; 22 percent has lost 25 to 50 percent of the topsoil. The remaining 32 percent is more severely eroded.*Soil.*—Hastings silt loam, 67 percent; Colby silt loam, 10 percent; Judson silt loam, 7 percent; Holdrege silt loam, 5 percent; other related types, 11 percent.

## LAND USE AND VEGETAL COVER:

*Land use distribution.*—Pasture, 11 percent; meadow, 9 percent; cultivated land, 77 percent; other uses, 3 percent.*Vegetal cover and soil condition.*—See tables 19 and 20.

## MEASUREMENTS:

*Precipitation.*—Rainfall was measured at 2 recording rain gages, C45R and D45R, and 4 nonrecording rain gages C35, C55, D38, and D50 (fig. 1). Nonrecording gage C64 was also used up to August 1, 1939. Snowfall was measured by weighing and recording rain and snow gages and by cooperative observers' measurements. Snow inventory on the watershed was obtained by inspection.*Run-off.*—Run-off was measured by current meters at medium and high stages and by a precalibrated 1-on-3 broad-crested V-notch weir at low stages. The run-off records are good. No current-meter discharge measurements were considered, but current-meter measurements at the other stations indicate that the laboratory rating for the 1-on-3 V-notch weir check field conditions at low stages.*Changes in instrumentation during period.*—Rain gages C45R and D45R were installed July 25, 1939; D50, August 1, 1939; D38, August 11, 1939; and C55, September 1, 1939. C64 was not used after August 1, 1939.

## SUMMARY OF RECORDS:

*Run-off.*—Annual run-off amount 1940, 0.023 inch. Maximum rate of run-off 1939, 0.159 inch per hour, June 20; maximum rate 1940, 0.010 inch per hour, June 8.

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1939				1939				1939				1939			
June 20 <sup>1</sup>				June 20				June 20				June 20			
<i>p. m.</i>	<i>Second-feet</i>	<i>Inches per hour</i>	<i>Inches</i>	<i>p. m.</i>	<i>Second-feet</i>	<i>Inches per hour</i>	<i>Inches</i>	<i>p. m.</i>	<i>Second-feet</i>	<i>Inches per hour</i>	<i>Inches</i>	<i>p. m.</i>	<i>Second-feet</i>	<i>Inches per hour</i>	<i>Inches</i>
1:19-----	0			2:45-----	35.1	0.0847	0.0360	4:30-----	4.20	0.0101	0.1458	5:40-----	40.5	0.0977	0.1965
:20-----	.01	T		:50-----	57.7	.139	.0453	:32-----	6.00	.0145	.1462	:44-----	47.0	.113	.2035
:21-----	.06	.0001		:55-----	65.8	.159	.0577	:34-----	8.00	.0193	.1468	:46-----	49.5	.119	.2074
:22-----	.07	.0002		3:00-----	49.4	.119	.0693	:35-----	10.0	.0241	.1472	:49-----	52.2	.126	.2135
:23-----	.28	.0007		:05-----	49.4	.119	.0792	:37-----	12.5	.0302	.1481	:50-----	52.7	.127	.2156
:24-----	.59	.0014		:10-----	35.1	.0847	.0877	:40-----	14.5	.0350	.1497	:55-----	52.7	.127	.2262
:25-----	1.22	.0029		:15-----	35.1	.0847	.0948	:43-----	17.0	.0410	.1516	6:00-----	51.0	.123	.2366
:30-----	4.13	.0100	.0005	:20-----	34.5	.0832	.1018	:46-----	19.0	.0458	.1538	:05-----	43.3	.104	.2461
:35-----	7.05	.0170	.0016	:25-----	35.1	.0847	.1088	:47-----	19.5	.0471	.1546	:10-----	36.4	.0878	.2541
:40-----	15.6	.0376	.0039	:30-----	35.1	.0847	.0159	:51-----	19.0	.0458	.1577	:15-----	33.2	.0801	.2611
:45-----	19.8	.0478	.0075	:35-----	32.1	.0775	.1227	:58-----	17.0	.0410	.1628	:20-----	30.4	.0734	.2675
:50-----	17.6	.0425	.0113	:40-----	24.0	.0579	.1283	5:05-----	14.5	.0350	.1672	:25-----	24.0	.0579	.2730
:55-----	15.6	.0376	.0146	:45-----	19.8	.0478	.1327	:08-----	14.4	.0347	.1689	:30-----	20.2	.0487	.2774
2:00-----	5.04	.0122	.0167	:50-----	9.24	.0223	.1356	:09-----	15.5	.0374	.1695	:35-----	20.2	.0487	.2815
:05-----	3.72	.0090	.0176	:55-----	9.24	.0223	.1375	:17-----	17.0	.0410	.1748	:40-----	15.2	.0367	.2851
:10-----	6.06	.0146	.0186	4:00-----	8.13	.0196	.1393	:25-----	19.0	.0458	.1806	:45-----	13.7	.0331	.2880
:30-----	9.24	.0223	.0247	:05-----	7.05	.0170	.1408	:30-----	21.0	.0507	.1846	:50-----	11.5	.0277	.2905
:35-----	12.1	.0292	.0269	:15-----	5.00	.0122	.1432	:35-----	27.5	.0664	.1895	:55-----	10.9	.0263	.2927
:40-----	22.0	.0531	.0303	:25-----	4.00	.0096	.1450	:37-----	33.5	.0808	.1920	7:00-----	9.52	.0230	.2947

See footnotes at end of table, p. 56.

Footnotes to table 26 continued from p. 51.

<sup>1</sup> Total rainfall for storm of June 15, 0.34 inch. Soil moist before rain. Little change in cover since June 9-10.<sup>2</sup> Total rainfall for storm of June 20-21, 1.33 inches. Soil moist before rain. Corn 12 inches high, much of it cultivated within the week preceding the rain. Oats, wheat, and barley, 10 to 14 inches high, part harvested. Sorghums sprouted. Meadows well covered. Pastures, very poor, grass 1 inch high.<sup>3</sup> Total rainfall for storm of June 25, 0.56 inch. Soil moist before rain. Corn 18 inches high, little cultivation since storm of June 20-21. All small grains harvested, stubble 4 inches high remained. Sorghums 4 inches high. Meadows well covered. Pastures poor.<sup>4</sup> Total rainfall for storm of July 1 to 7, 0.74 inch. Soil dry on surface before rain. Corn 24 inches high, sorghums 5 inches high. Most of corn and sorghums cultivated immediately before rain. Stubble remained from grain crops. Meadows well covered. Pastures poor.<sup>5</sup> Total rainfall for storm of Aug. 1, 0.25 inch. Soil dry before rain. Corn 36 inches high. Sorghums 24 inches high. Stubble remained from grain crops. Meadows well covered. Pastures poor, soil dry and hard.<sup>6</sup> Total rainfall for storm of Aug. 7-8, 0.77 inch. Soil dry before rain. Little change in cover since Aug. 1.<sup>7</sup> Total rainfall for storm of Aug. 11-12, 0.46 inch. Soil dry before rain. Little change in cover since Aug. 1.<sup>8</sup> Total rainfall for storm of Aug. 14-15, 0.26 inch. Soil dry before rain. Little change in cover since Aug. 1.<sup>9</sup> Run-off caused by melting snow.<sup>10</sup> Total rainfall for storm of Mar. 1-2, 0.42 inch. Soil dry before rain. Corn stalks and stubble remained on fields from previous year. Thick covering of thistles in most stubble fields. Pastures were poor and meadows fair.<sup>11</sup> Total rainfall for storm of Apr. 9-10, 0.16 inch. Soil moist before rain. Oats and barley were planted. Winter wheat had made little growth. Pastures were poor and meadows fair.<sup>12</sup> Total rainfall for storm of Apr. 16-17, 0.40 inch. Soil dry before rain. Ground was being disked for corn. Oats and barley about 2 inches high. Pastures were fair.<sup>13</sup> Total rainfall for storm of Apr. 22, 0.43 inch. Soil dry before rain. Little change in cover since Apr. 16-17.<sup>14</sup> Total rainfall for storms of May 17-18, 1.38 inches. Soil moist before rain. Corn being planted. Grain 6 inches high, poor. Soil was well protected by thistles. Pastures and meadows, fair.<sup>15</sup> Total rainfall for storm of May 20, 0.24 inch. Soil wet before rain. Little change in cover since May 17-18.<sup>16</sup> Total rainfall for storm of June 8, 1.12 inches. Soil dry before rain. Corn was 4 inches high. Grain was headed and about 12 inches high. Pastures and meadows were fair.<sup>17</sup> Total rainfall for storm of June 22, 0.40 inch. Soil dry before rain. Corn was 12 inches high. Grain was ripe and very poor. Pastures and meadows were fair.<sup>18</sup> Total rainfall for storm of July 27, 0.18 inch. Soil was dry before rain. Corn was tasseling and about 3 feet high. Grain had all been harvested, the stubble remaining. Pastures were very poor and meadows fair.<sup>19</sup> Total rainfall for storm of Aug. 12, 0.18 inch. Soil was dry before rain. Little change in cover since July 27.<sup>20</sup> Total rainfall for storm of Sept. 22-23, 0.74 inch. Soil dry before rain. Corn was poor. Grain stubble remained in fields. Pastures, very poor.<sup>21</sup> Total rainfall for storm of Sept. 24, 0.57 inch. Soil wet from rains of previous days. No change in cover since Sept. 23.<sup>22</sup> Total rainfall for storm of Oct. 1, 0.27 inch. Soil dry before rain. Winter wheat planted after last rain.<sup>23</sup> Total rainfall for storm of Oct. 1-2, 0.21 inch. Soil wet before rain. No change in cover since Oct. 1.<sup>24</sup> Total rainfall for storm of Oct. 9-10, 0.13 inch. Soil moist before rain. Corn stalks and grain stubble remained on fields.<sup>25</sup> Total rainfall for storm of Nov. 8-9, 0.59 inch. Soil dry before rain. Corn stalks and grain stubble remained on fields.



TABLE 27.—Run-off from watershed 5, June 20, 1939, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off			Accumulated run-off	Date and time	Instantaneous rate of run-off			Accumulated run-off	Date and time	Instantaneous rate of run-off			Accumulated run-off					
1939					1939					1939					1939				
June 20					June 21					June 25					July 1				
p. m.	Second-foot	Inches per hour	Inches		p. m.	Second-foot	Inches per hour	Inches		a. m.	Second-foot	Inches per hour	Inches		a. m.	Second-foot	Inches per hour	Inches	
7:05	9.52	0.0230	0.2966		9:20	1.67	0.0040	0.0093		2:20	2.52	0.0061	0.0017		5:33	3.59	0.0057	0.0098	
:10	8.13	.0196	.2984		:23	2.21	.0053	.0095		:22	3.09	.0075	.0019		:35	4.13	.0100	.0101	
:15	7.69	.0186	.3000		:25	2.97	.0072	.0097		:25	3.72	.0090	.0023		:40	5.04	.0122	.0110	
:20	7.05	.0170	.3015		:27	3.72	.0090	.0100		:27	4.42	.0107	.0026		:45	5.04	.0122	.0120	
:25	6.44	.0155	.3029		:30	4.57	.0110	.0105		:30	5.20	.0125	.0032		:50	4.72	.0114	.0130	
:30	6.06	.0146	.3042		:35	5.04	.0122	.0115		:35	7.05	.0170	.0044		:55	4.72	.0114	.0140	
:35	5.36	.0129	.3054		:40	5.20	.0125	.0125		:38	8.13	.0196	.0053	6:00	5.04	.0122	.0150		
:40	5.04	.0122	.3065		:45	5.04	.0122	.0135		:40	8.96	.0216	.0060	:07	5.20	.0125	.0164		
:45	4.72	.0114	.3075		10:00	3.72	.0090	.0161		:45	11.5	.0277	.0080	:15	5.04	.0122	.0181		
:50	4.13	.0100	.3084		:10	2.85	.0069	.0174		:50	13.7	.0331	.0105	:30	4.13	.0100	.0209		
:55	3.85	.0093	.3092		:20	2.31	.0056	.0184		:55	16.4	.0396	.0135	:40	3.09	.0075	.0224		
8:00	3.59	.0087	.3100		:30	1.84	.0044	.0192		3:00	18.9	.0456	.0171	:50	2.21	.0053	.0235		
:05	3.33	.0080	.3107		:40	1.43	.0034	.0198		:05	17.6	.0425	.0208	7:00	1.75	.0043	.0243		
:10	2.85	.0069	.3113		:50	1.22	.0029	.0203		:10	15.6	.0376	.0241	:15	1.51	.0036	.0253		
:15	2.52	.0061	.3118		11:00	1.03	.0025	.0207		:15	14.0	.0338	.0271	:30	1.29	.0031	.0262		
:20	2.52	.0061	.3123		:10	.86	.0021	.0211		:20	12.8	.0309	.0298	:45	1.15	.0028	.0270		
:25	2.41	.0058	.3128		:20	.72	.0017	.0214		:25	10.9	.0263	.0322	8:00	.98	.0024	.0277		
:30	2.21	.0053	.3133		:30	.63	.0015	.0217		:30	9.79	.0236	.0343	:15	.81	.0020	.0283		
:35	2.11	.0051	.3137		:40	.55	.0013	.0219		:35	8.96	.0216	.0362	:30	.67	.0016	.0288		
:40	2.02	.0049	.3141		:50	.48	.0012	.0221		:40	7.69	.0186	.0379	:45	.55	.0013	.0292		
:45	1.93	.0047	.3145		12:00	.42	.0010	.0223		:45	7.26	.0175	.0394	9:00	.45	.0011	.0295		
:50	1.84	.0044	.3149		June 22					:50	6.44	.0155	.0408	:15	.36	.0009	.0298		
:55	1.75	.0042	.3153		a. m.					:55	5.85	.0142	.0420	:30	.23	.0007	.0300		
9:00	1.59	.0038	.3156		12:10	.36	.0009	.0225		4:00	5.33	.0133	.0432	:45	.21	.0005	.0302		
:05	1.36	.0033	.3159		:20	.33	.0008	.0226		:10	4.42	.0107	.0452	10:00	.15	.0004	.0303		
:10	1.29	.0031	.3162		:30	.30	.0007	.0227		:20	3.46	.0083	.0476	:15	.12	.0003	.0304		
:15	1.22	.0029	.3165		:45	.26	.0006	.0229		:30	2.52	.0061	.0488	:30	.09	.0002	.0306		
:20	1.22	.0029	.3167		:50	.21	.0005	.0231		:35	2.02	.0049	.0493	:45	.06	.0001	.0307		
:25	1.15	.0028	.3169		1:00	.17	.0004	.0232		:40	1.59	.0038	.0497	11:00	.05	.0001	.0308		
:30	1.09	.0026	.3171		:15	.15	.0004	.0233		:45	1.15	.0028	.0500	:15	.04	.0001	.0309		
:35	1.03	.0025	.3173		:30	.13	.0003	.0234		:50	.76	.0018	.0502	:30	.03	.0001	.0310		
:40	.92	.0022	.3175		:45	.10	.0002	.0235		5:00	.55	.0013	.0505	:45	.03	.0001	.0311		
:45	.92	.0022	.3177		2:00	.09	.0002	.0236		:15	.42	.0010	.0508	12:00	.02	T			
:50	.81	.0020	.3179		:15	.07	.0002	.0237		:30	.33	.0008	.0510	p. m.					
:55	.76	.0018	.3181		:30	.06	.0001	.0238		:45	.26	.0006	.0512	12:15	.02	T			
10:00	.72	.0017	.3183		:45	.05	.0001	.0239		6:00	.19	.0005	.0514	:30	.01	T			
:05	.72	.0017	.3184		3:00	.05	.0001	.0240		:15	.15	.0004	.0515	:45	.01	T			
:10	.67	.0016	.3185		:15	.04	.0001	.0241		:30	.12	.0003	.0516	1:00	.01	T			
:15	.67	.0016	.3186		:30	.03	.0001	.0242		:45	.09	.0002	.0517	:15	.01	T			
11:15	.39	.0009	.3198		:45	.03	.0001	.0243		7:00	.12	.0003	.0518	:30	.01	T			
:30	.33	.0008	.3200		4:00	.03	.0001	.0244		:15	.17	.0004	.0519	:45	.01	T			
12:00	.26	.0006	.3203		:15	.02	T	.0245		:30	.15	.0004	.0520	2:00	.01	T			
June 21					:30	.02	T	.0246		:45	.13	.0003	.0521	:30	.01	T			
a. m.					:45	.02	T	.0247		8:00	.10	.0002	.0522	:45	.01	T			
12:30	.19	.0005	.3206		5:00	.01	T	.0248		:15	.09	.0002	.0523	3:00	.01	T			
1:00	.15	.0004	.3208		:15	.01	T	.0249		:30	.06	.0001	.0524	:15	0	0	.0306		
:30	.16	.0003	.3210		:30	.01	T	.0250		:45	.05	.0001	.0525	July 5 <sup>a</sup>					
2:00	.10	.0002	.3211		:45	.01	T	.0251		9:00	.03	.0001	.0526	a. m.					
:30	.07	.0002	.3212		6:00	.01	T	.0252		:15	.03	.0001	.0527	12:03	0	0	0		
:30	.05	.0001	.3213		:15	T	T	.0253		:30	.02	T	.0528	:04	.12	.0003	.0003		
:30	.03	.0001			:30	T	T	.0254		:40	.02	T	.0529	:05	.07	.0016	.0006		
4:00	.02	T			:45	T	T	.0255		:50	.01	T	.0530	:06	.81	.0020	.0007		
:30	.02	T			7:00	T	T	.0256		:50	.01	T	.0531	:07	.76	.0018	.0008		
5:00	.01	T			:30	T	T	.0257		10:00	.01	T	.0532	:08	.76	.0018	.0009		
:30	.01	T			8:00	T	T	.0258		:20	.01	T	.0533	:09	.86	.0021	.0010		
6:00	T	T			:20	T	T	.0259		:40	T	T	.0534	:10	.92	.0022	.0011		
:30	T	T			:40	0	0	.0260		:15	T	T	.0535	:14	.92	.0022	.0001		
7:00	T	T			June 25 <sup>a</sup>					:30	T	T	.0536	:15	1.09	.0026	.0002		
8:00	T	T			a. m.					:45	T	T	.0537	:17	1.15	.0028	.0002		
:30	T	T			1:26	0	0	0		12:05	T	T	.0521	:18	1.09	.0026	.0003		
9:00	0	0	.3213		:27	T	T			:15	0	0		:20	.92	.0022	.0004		
p. m. <sup>2</sup>					:28	T	T			July 1 <sup>a</sup>					:22	.67	.0016	.0004	
7:43	0	0	0		:29	.01	T			a. m.					:23	.55	.0013		
:44	1.22	.0029	.0001		:30	.02	T			5:00	0	0	0	:25	.39	.0009			
:45	1.67	.0040	.0002		:31	.03	.0001			:01	T	T		:27	.28	.0007			
:46	1.84	.0044	.0002		:32	.07	.0002			:02	.02	T		:29	.28	.0007			
:47	2.41	.0058	.0003		:33	.12	.0003			:03	.03	.0001		:30	.23	.0006			
:48	2.63	.0063	.0004		:34	.15	.0004			:04	1.22	.0029		:35	.17	.0004			
:49	2.97	.0072	.0005		:35	.17	.0004			:05	.03	.0001		:40	.13	.0003			
:50	3.09	.0075	.0006		:36	.21	.0005			:06	3.09	.0075	.0001	:42	.12	.0003			
:51	3.33	.0080	.0009		:37	.33	.0008			:07	4.42	.0107	.0003	:43	.39	.0009			
:52	4.13	.0100	.0013		:38	.45	.0011			:08	6.84	.0165	.0005	:44	.76	.0018			
:53	5.04	.0122	.0017		:39	.55	.0013			:09	10.3	.0249	.0008	:45	1.15	.0028			
:54	5.04	.0122	.0025		:40	.67	.0016			:10	12.1	.0292	.0012	:48	1.51	.0036	.0006		
8:01	5.04	.0122	.0032		:41	.92	.0022			:11	13.1	.0316							



TABLE 27.—Run-off from watershed 5, June 20, 1939, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1939				1939				1939				1940			
July 5				Aug. 7				Aug. 12				Mar. 16			
a. m.	Second-feet	Inches per hour	Inches	p. m.	Second-feet	Inches per hour	Inches	a. m.	Second-feet	Inches per hour	Inches	p. m.	Second-feet	Inches per hour	Inches
4:00	0.13	0.0003	0.0053	7:20	0.52	0.0012	0.0013	12:15	7.69	0.0186	0.0419	3:10	0.02	T	
4:15	.12	.0003	.0054	7:25	.42	.0010	.0014	12:20	6.44	.0155	.0433	3:15	.02	T	
4:30	.10	.0002		7:30	.33	.0008	.0015	12:25	5.36	.0129	.0445	3:20	.01	T	
5:00	.09	.0002	.0055	7:35	.26	.0006	.0016	12:30	4.72	.0114	.0455	3:30	.01	T	
5:30	.06	.0001	.0056	7:40	.19	.0005		12:35	3.99	.0096	.0464	3:35	T	T	
6:00	.05	.0001		7:45	.15	.0004		12:40	3.46	.0083	.0472	5:15	T	T	
6:30	.04	.0001		7:50	.12	.0003		12:45	3.09	.0075	.0479	3:00	0	0	T
7:00	.03	.0001		7:55	.10	.0002		12:50	2.63	.0063	.0485				
7:30	.03	.0001		8:00	.13	.0003		12:55	2.31	.0056	.0490	Apr. 10 <sup>10</sup>			
8:00	.02	T		8:05	.17	.0004		1:00	2.02	.0049	.0494	a. m.			
8:30	.02	T		8:10	.21	.0005		1:05	1.84	.0044	.0498	1:27	0	0	0
9:00	.01	T		8:15	.30	.0007		1:10	1.59	.0038	.0501	3:00	T	T	
9:30	.01	T		8:20	.39	.0009		1:15	1.43	.0034	.0504	2:00	T	T	
10:00	.01	T		8:25	.52	.0012	.0017	1:20	1.22	.0029	.0507	10:00	0	0	T
10:30	T	T		8:30	.59	.0014	.0018	1:30	.98	.0024	.0511				
11:00	T	T		8:35	.62	.0015	.0019	1:40	.76	.0018	.0515	Apr. 16 <sup>11</sup>			
11:30	T	T		8:40	.63	.0015	.0023	1:50	.59	.0014	.0518	p. m.			
12:00	T	T		8:45	.63	.0015	.0026	2:00	.52	.0012	.0520	11:45	0	0	0
12:30				8:50	.66	.0016	.0028	2:05	.45	.0011	.0523	5:00	T	T	
12:00				8:55	.66	.0016	.0030	2:10	.39	.0009	.0525	12:00	T	T	
12:30	T	T		9:00	.65	.0015	.0031	2:15	.33	.0008	.0527				
1:00	0	0	.0058	9:05	.63	.0014		3:00	.28	.0007	.0529	Apr. 17			
				9:10	.63	.0014		3:05	.23	.0006	.0531	a. m.			
Aug 1 <sup>6</sup>				9:15	.63	.0014		3:10	.19	.0005	.0533	12:05	0	0	T
p. m.				9:20	.63	.0014		3:15	.17	.0004	.0534	Apr. 22 <sup>12</sup>			
8:07	0	0	0	9:25	.63	.0014		3:20	.13	.0003	.0535	a. m.			
8:08	.02	T		9:30	.63	.0014		3:25	.10	.0002	.0536	7:30	0	0	0
8:09	.09	.0002		9:35	.63	.0014		3:30	.07	.0002	.0537	3:35	T	T	
8:10	.17	.0004		9:40	.63	.0014		3:35	.05	.0001	.0538	8:45	T	T	
8:12	.15	.0004		9:45	.63	.0014		3:40	.03	.0001		9:00	0	0	T
8:14	.09	.0002		9:50	.63	.0014		3:45	.03	.0001		May 7 <sup>13</sup>			
8:15	.06	.0001		9:55	.63	.0014		3:50	.03	.0001		a. m.			
8:17	.04	.0001		10:00	.63	.0014		3:55	.02	T		8:57	0	0	0
8:20	.03	.0001		10:05	.63	.0014		4:00	.02	T		5:58	T	T	
8:22	.02	T		10:10	.63	.0014		4:05	.01	T		10:45	T	T	
8:23	.02	T		10:15	.63	.0014		4:10	.01	T		5:1	0	0	T
8:24	.01	T		10:20	.63	.0014		4:15	T	T					
8:25	.01	T		10:25	.63	.0014		4:20	T	T		May 13 <sup>14</sup>			
8:27	.01	T		10:30	.63	.0014		4:25	T	T		a. m.			
8:30	T	T		10:35	.63	.0014		4:30	T	T		8:57	0	0	0
8:32	T	T		10:40	.63	.0014		4:35	T	T		5:58	T	T	
8:34	T	T		10:45	.63	.0014		4:40	T	T		5:1	0	0	T
8:37	T	T		10:50	.63	.0014		4:45	0	0	.0538				
8:43	T	T		10:55	.63	.0014		4:50	0	0		May 17 <sup>15</sup>			
8:45	0	0	T	11:00	.63	.0014		4:55	0	0		a. m.			
Aug. 7 <sup>1</sup>				11:05	.63	.0014		5:00	0	0		5:31	0	0	0
p. m.				11:10	.63	.0014		5:05	0	0		3:2	T	T	
5:37	0	0	0	11:15	.63	.0014		5:10	0	0		6:45	T	T	
5:38	.01	T		11:20	.63	.0014		5:15	.01	T		5:0	0	0	T
5:39	.04	.0001		11:25	.63	.0014		5:20	.01	T					
5:40	.09	.0002		11:30	.63	.0014		5:25	.02	T		May 18 <sup>16</sup>			
5:42	.10	.0002		11:35	.63	.0014		5:30	.02	T		a. m.			
5:43	.12	.0003		11:40	.63	.0014		5:35	.02	T		3:50	0	0	0
5:44	.33	.0003		11:45	.63	.0014		5:40	.01	T		4:00	T	T	
5:45	.67	.0016		11:50	.63	.0014		5:45	.01	T		6:45	T	T	
5:47	1.09	.0026	.0001	11:55	.63	.0014		5:50	T	T		5:5	0	0	T
5:50	1.09	.0026	.0002	12:00	.63	.0014		5:55	T	T					
5:55	1.03	.0025	.0004	12:05	.63	.0014		6:00	0	0	T	May 20 <sup>17</sup>			
5:57	.92	.0022	.0005	12:10	.63	.0014		6:05	0	0		p. m.			
6:00	.72	.0017	.0006	12:15	.63	.0014		6:10	0	0		12:32	0	0	0
6:02	.55	.0013		12:20	.63	.0014		6:15	0	0		3:5	T	T	
6:05	.45	.0011	.0007	12:25	.63	.0014		6:20	0	0		4:00	T	T	
6:07	.39	.0009		12:30	.63	.0014		6:25	0	0		5:05	0	0	T
6:10	.28	.0007		12:35	.63	.0014		6:30	0	0					
6:12	.21	.0005		12:40	.63	.0014		6:35	0	0					
6:15	.13	.0003		12:45	.63	.0014		6:40	0	0					
6:20	.09	.0002		12:50	.63	.0014		6:45	0	0					
6:22	.06	.0001		12:55	.63	.0014		6:50	0	0					
6:25	.04	.0001		13:00	.63	.0014		6:55	0	0					
6:27	.03	.0001		13:05	.63	.0014		7:00	0	0					
6:28	.03	.0001		13:10	.63	.0014		7:05	0	0					
6:30	.02	T		13:15	.63	.0014		7:10	0	0					
6:32	.02	T		13:20	.63	.0014		7:15	0	0					
6:35	.01	T		13:25	.63	.0014		7:20	0	0					
6:38	.01	T		13:30	.63	.0014		7:25	0	0					
6:40	.01	T		13:35	.63	.0014		7:30	0	0					
6:45	T	T		13:40	.63	.0014		7:35	0	0					
6:50	T	T		13:45	.63	.0014		7:40	0	0					
6:55	T	T		13:50	.63	.0014		7:45	0	0					
6:57	T	T		13:55	.63	.0014		7:50	0	0					
6:58	.12	.0003		14:00	.63	.0014		7:55	0	0					
6:59	.52	.0012		14:05	.63	.0014		8:00	0	0					
7:00	.72	.0017		14:10	.63	.0014		8:05	0	0					
7:01	.81	.0020		14:15	.63	.0014		8:10	0	0					
7:03	.81	.0020	.0008	14:20	.63	.0014		8:15	0	0					
7:05	.81	.0020	.0009	14:25	.63	.0014		8:20	0	0					
7:10	.72														



TABLE 27.—Run-off from watershed 5, June 20, 1939, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1940				1940				1940				1940			
June 8 <sup>18</sup>				June 8				June 8				June 8			
p. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches
8:15-----	0	0	0	9:00-----	0.33	0.0008	0.0003	10:10-----	2.11	0.0051	0.0032	1:00-----	1.03	0.0025	0.0200
:16-----	T	T		:05-----	.26	.0006	.0004	:15-----	1.93	.0047	.0066	:15-----	.86	.0021	.0206
:19-----	T	T		:10-----	.19	.0005		:20-----	1.75	.0042	.0070	:30-----	.72	.0017	.0211
:20-----	.01	T		:11-----	.18	.0004		:25-----	1.59	.0038	.0073	:45-----	.59	.0014	.0215
:21-----	.04	.0001		:12-----	.17	.0004		:30-----	1.43	.0034	.0076	2:00-----	.52	.0012	.0218
:22-----	.10	.0002		:13-----	.17	.0004		:35-----	1.36	.0033	.0079	:30-----	.36	.0009	.0223
:23-----	.15	.0004		:14-----	.26	.0006		:40-----	1.32	.0032	.0082	:30-----	.23	.0006	.0227
:24-----	.17	.0004		:15-----	.39	.0009		:45-----	1.43	.0034	.0085	:30-----	.13	.0003	.0229
:25-----	.17	.0004		:16-----	.50	.0012		:50-----	1.79	.0043	.0088	4:00-----	.08	.0002	.0230
:27-----	.17	.0004		:17-----	.57	.0014		:55-----	2.26	.0055	.0092	:30-----	.04	.0001	.0231
:28-----	.18	.0004		:18-----	.59	.0014		11:00-----	2.68	.0065	.0097	5:00-----	.02	T	
:29-----	.19	.0005		:19-----	.60	.0014		:05-----	2.85	.0069	.0103	:30-----	.01	T	
:30-----	.21	.0005		:20-----	.61	.0015		:10-----	2.91	.0070	.0109	6:00-----	T	T	
:31-----	.24	.0006		:21-----	.67	.0016		:15-----	2.85	.0069	.0115	9:00-----	T	T	
:32-----	.26	.0006		:22-----	1.03	.0025		:20-----	2.79	.0067	.0121	:30-----	0	0	.0231
:33-----	.28	.0007		:23-----	1.84	.0044	.0005	:25-----	2.68	.0065	.0127				
:34-----	.30	.0007		:24-----	2.74	.0066	.0006	:30-----	2.58	.0062	.0132	Sept. 24 <sup>19</sup>			
:35-----	.32	.0008		:25-----	3.33	.0080	.0007	:35-----	2.46	.0059	.0137	a. m.			
:36-----	.33	.0008		:26-----	3.62	.0087	.0008	:40-----	2.41	.0058	.0142	1:41-----	0	0	0
:37-----	.39	.0009		:27-----	3.85	.0093	.0010	:45-----	2.36	.0057	.0147	:45-----	T	T	
:38-----	.45	.0011		:28-----	3.92	.0095	.0012	:50-----	2.31	.0056	.0152	2:45-----	T	T	
:39-----	.53	.0012		:29-----	3.99	.0096	.0014	:55-----	2.26	.0057	.0157	3:05-----	0	0	T
:40-----	.61	.0014		:30-----	3.92	.0095	.0016	12:00-----	2.21	.0053	.0161				
:41-----	.63	.0015		:35-----	3.59	.0087	.0024	June 9				Nov. 9 <sup>20</sup>			
:42-----	.67	.0016		:40-----	3.33	.0080	.0031	a. m.				a. m.			
:43-----	.69	.0017		:45-----	2.97	.0069	.0037	12:15-----	1.93	.0047	.0173	12:18-----	0	0	0
:44-----	.69	.0017		:50-----	2.80	.0068	.0043	:30-----	1.55	.0037	.0183	:20-----	T	T	
:45-----	.67	.0016		:55-----	2.63	.0063	.0048	:45-----	1.26	.0037	.0192	11:10-----	T	T	
:50-----	.63	.0015	.0001	10:00-----	2.46	.0059	.0053					:20-----	0	0	T
:55-----	.45	.0011	.0002	:05-----	2.31	.0056	.0058								

<sup>1</sup> Total rainfall for storm of June 20, 1.25 inches. Soil moist before rain. Corn 12 inches high, much of it cultivated within the week preceding the rain. Oats, wheat, and barley, 10 to 14 inches high, part of it harvested. Sorghums sprouted. Meadows well covered. Pastures very poor, grass 1 inch high.

<sup>2</sup> Total rainfall for storm of June 21, 0.25 inch. Soil wet and plastic before rain. Little change in cover since June 20.

<sup>3</sup> Total rainfall for storm of June 25, 0.57 inch. Soil moist before rain. Corn 18 inches high, little cultivation since June 21. All small grains harvested, stubble 4 inches high remained. Sorghums 4 inches high. Meadows well covered. Pasture poor.

<sup>4</sup> Total rainfall for storm of July 1, 0.48 inch. Soil dry on surface before rain. Corn 24 inches high. Sorghums 5 inches high. Most of corn and sorghums cultivated immediately before rain. Stubble from grain crops remained. Meadows well covered. Pastures poor.

<sup>5</sup> Total rainfall for storm of July 4-5, 0.26 inch. Soil dry on surface but moist below before rain. Little change in crops since July 1.

<sup>6</sup> Total rainfall for storm of Aug. 1, 0.36 inch. Soil dry before rain. Corn 36 inches high. Sorghums 24 inches high. Stubble remained from grain crops. Meadows well covered. Pastures poor, soil dry and hard.

<sup>7</sup> Total rainfall for storm of Aug. 7, 0.80 inch. Soil dry before rain. Little change in cover since Aug. 1.

<sup>8</sup> Total rainfall for storm of Aug. 11, 0.49 inch. Soil dry before rain. Little change in cover since Aug. 1.

<sup>9</sup> Run-off caused by melting snow.

<sup>10</sup> Total rainfall for storm of Apr. 9-10, 0.12 inch. Soil moist before rain. Oats and barley planted. Winter wheat made little growth. Pastures poor. Meadows fair.

<sup>11</sup> Total rainfall for storm of Apr. 16-17, 0.46 inch. Soil dry before rain. Ground for corn being disked. Oats and barley about 2 inches high. Pastures fair.

<sup>12</sup> Total rainfall for storm of Apr. 22, 0.29 inch. Soil dry before rain. Little change in cover since Apr. 16-17.

<sup>13</sup> Total rainfall for storm of May 7, 0.14 inch. Soil moist. Corn ground had been disked. Oats and barley about 4 inches high. Pastures and meadows fair.

<sup>14</sup> Total rainfall for storm of May 13, 0.34 inch. Soil dry before rain. Little change in cover since May 7.

<sup>15</sup> Total rainfall for storm of May 17, 0.85 inch. Soil moist before rain. Corn being planted. Grain 6 inches high, poor. Soil well protected by thistles. Pastures and meadows fair.

<sup>16</sup> Total rainfall for storm of May 18, 0.35 inch. Soil wet before rain. No change in cover since May 17.

<sup>17</sup> Total rainfall for storm of May 20, 0.21 inch. Soil wet before rain. Little change in cover since May 17.

<sup>18</sup> Total rainfall for storm of June 8, 1.09 inch. Soil dry before rain. Corn 4 inches high. Grain headed and about 12 inches high. Pastures and meadows fair.

<sup>19</sup> Total rainfall for storm of Sept. 24, 0.58 inch. Soil wet from rains of previous days. Corn poor. Grain stubble in fields. Pastures very poor.

<sup>20</sup> Total rainfall for storm of Nov. 8-9, 0.68 inch. Soil dry before rain. Corn stalks and grain stubble on fields.



TABLE 28.—Run-off from watershed 1-H, March 27, 1939, to December 31, 1940

LOCATION: Latitude 40°16'02", longitude 98°22'08".

## PHYSICAL CHARACTERISTICS:

Drainage area.—3.62 acres.

Length of principal watercourse.—430 feet.

Topography.—Undulating, well drained.

Slope.—Average slope is 7.2 percent. 4 percent of the watershed has a slope of less than 2 percent; 12 percent, 2 to 5 percent; 43 percent, 5 to 8 percent; 37 percent, 8 to 12 percent; and 4 percent has a slope of 12 percent or more.

Erosion condition.—No gullies or depressions. Less than 25 percent of the topsoil has been lost.

Soil.—Hastings silt loam, 100 percent.

## LAND USE AND VEGETAL COVER:

Land use distribution.—Native meadow, 100 percent.

Vegetal cover and soil condition.—The ecological survey made in November 1939 showed a basal vegetal cover of 18 percent, of which 4 percent was side-oats grama, 13 percent was blue grama, and 1 percent was other grasses. The grasses

never averaged over 6 inches in height in the entire period and no hay was harvested from the area in either 1939 or 1940 because of the extreme drought.

## MEASUREMENTS:

Precipitation.—Rainfall was measured at recording rain gage C29R before April 20, 1939, and B36R thereafter, and at the nonrecording rain gage B39 (fig. 2). Snowfall was measured by weighing and recording rain and snow gages and by cooperative observers' measurements. Snow inventory on the watershed was obtained by inspection.

Run-off.—Run-off was measured by an H flume 3 feet deep.

Changes in instrumentation during period.—Rain gage C29R was discontinued April 20, 1939. Rain gage B36R was installed April 20, 1939, and B39 April 21, 1939.

## SUMMARY OF RECORDS:

Run-off.—Annual run-off amount 1940, 0.007 inch. Maximum rate of run-off 1939, 0.377 inch per hour, August 11; maximum rate 1940, 0.028 inch per hour, May 17.

Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off
1939			1939			1939			1939		
Apr. 4 <sup>1</sup>			May 20			June 20			June 20		
a. m.	Second-foot	Inches per hour	a. m.	Second-foot	Inches per hour	p. m.	Second-foot	Inches per hour	p. m.	Second-foot	Inches per hour
11:15-----	0	0	5:37-----	0.06	0.0170	1:20-----	0.06	0.0165	4:45-----	T	0.0007
16-----	T	.0002	38-----	.06	.0178	21-----	.05	.0144	46-----	T	.0003
17-----	T	.0002	39-----	.05	.0145	22-----	.05	.0124	47-----	0	0
18-----	T	.0002	40-----	.05	.0141	23-----	.05	.0140	0	0	0.0001
19-----	T	.0002	41-----	.06	.0158	24-----	.08	.0212	June 21 <sup>6</sup>		
20-----	T	.0004	42-----	.06	.0167	25-----	.11	.0289	p. m.		
21-----	T	.0008	43-----	.05	.0124	26-----	.17	.0467	7:47-----	0	0
22-----	T	.0008	44-----	.04	.0108	27-----	.22	.0609	48-----	.02	.0042
23-----	T	.0006	45-----	.03	.0088	28-----	.24	.0666	49-----	.02	.0041
24-----	T	.0006	46-----	.02	.0060	29-----	.26	.0705	50-----	.01	.0036
25-----	T	.0011	47-----	.01	.0037	30-----	.22	.0593	51-----	.02	.0042
26-----	.01	.0023	48-----	.01	.0020	31-----	.18	.0500	52-----	.01	.0027
27-----	.01	.0022	49-----	T	.0005	32-----	.16	.0423	53-----	.01	.0022
28-----	T	.0007	50-----	0	0	33-----	.12	.0333	54-----	.01	.0017
29-----	T	.0003	June 12 <sup>3</sup>			34-----	.10	.0266	55-----	.01	.0015
30-----	T	.0001	p. m.			35-----	.08	.0206	56-----	.01	.0014
31-----	T	.0002	9:19-----	0	0	36-----	.07	.0187	57-----	T	.0011
32-----	T	.0001	20-----	.07	.0202	37-----	.06	.0176	58-----	T	.0011
33-----	0	0	21-----	.05	.0149	38-----	.08	.0210	59-----	T	.0012
p. m.			22-----	.05	.0142	39-----	.08	.0215	8:00-----	T	.0011
12:10-----	0	0	23-----	.03	.0090	40-----	.07	.0198	01-----	T	.0009
11-----	T	.0001	24-----	.02	.0063	41-----	.06	.0165	02-----	T	.0007
12-----	T	.0001	25-----	.01	.0027	42-----	.05	.0144	03-----	T	.0006
13-----	T	.0001	26-----	.01	.0014	43-----	.04	.0115	04-----	T	.0005
14-----	T	.0001	27-----	.01	.0015	44-----	.03	.0072	05-----	T	.0002
15-----	T	.0001	28-----	T	.0008	45-----	.02	.0051	06-----	0	0
16-----	T	.0001	29-----	T	.0001	46-----	.02	.0051	June 25 <sup>7</sup>		
17-----	T	.0001	30-----	0	0	47-----	.01	.0030	1:22-----	0	0
18-----	T	.0001	June 15 <sup>4</sup>			48-----	.01	.0026	23-----	.02	.0046
19-----	T	.0001	a. m.			49-----	.01	.0026	24-----	.01	.0031
20-----	T	.0001	3:20-----	0	0	50-----	.01	.0017	25-----	.01	.0031
21-----	0	0	21-----	.02	.0049	51-----	T	.0008	26-----	.01	.0024
22-----	0	0	22-----	.03	.0095	52-----	T	.0001	27-----	.01	.0022
23-----	T	.0001	23-----	.06	.0173	53-----	0	0	28-----	.01	.0021
24-----	T	.0002	24-----	.09	.0242	4:20-----			29-----	.01	.0019
25-----	T	.0003	25-----	.10	.0279	21-----	0	0	30-----	.01	.0017
26-----	T	.0004	26-----	.10	.0262	22-----	.01	.0016	31-----	.01	.0016
27-----	T	.0005	27-----	.09	.0234	23-----	.01	.0017	32-----	.01	.0015
28-----	T	.0006	28-----	.09	.0238	24-----	.01	.0021	33-----	T	.0013
29-----	T	.0006	29-----	.10	.0279	25-----	.01	.0028	34-----	T	.0012
30-----	T	.0006	30-----	.10	.0281	26-----	.01	.0031	35-----	T	.0009
31-----	T	.0004	31-----	.09	.0234	27-----	.01	.0030	36-----	T	.0005
32-----	T	.0004	32-----	.08	.0210	28-----	.01	.0021	37-----	T	.0002
33-----	T	.0003	33-----	.06	.0175	29-----	.01	.0018	38-----	0	0
34-----	T	.0002	34-----	.04	.0112	30-----	.01	.0017	Aug. 11 <sup>8</sup>		
35-----	T	.0001	35-----	.02	.0061	31-----	.01	.0016	p. m.		
36-----	T	.0001	36-----	.01	.0033	32-----	.01	.0015	9:56-----	0	0
37-----	T	.0001	37-----	0	0	33-----	T	.0012	57-----	.13	.0350
38-----	0	0	June 20 <sup>5</sup>			34-----	T	.0012	58-----	.22	.0595
May 20 <sup>2</sup>			p. m.			35-----	.01	.0014	59-----	.61	.167
a. m.			1:15-----	0	0	36-----	.01	.0022	10:00-----	1.29	.352
5:33-----	0	0	16-----	.14	.0391	37-----	.01	.0026	01-----	1.36	.371
34-----	.03	.0075	17-----	.09	.0257	38-----	.01	.0031	02-----	1.38	.377
35-----	.05	.0123	18-----	.08	.0210	39-----	.01	.0032	03-----	1.34	.366
36-----	.06	.0153	19-----	.07	.0187	40-----	.01	.0026	04-----	1.17	.320
						41-----	.01	.0020			
						42-----	.01	.0016			
						43-----	T	.0014			
						44-----	T	.0011			

See footnotes at end of table, p. 58.



TABLE 28.—Run-off from watershed 1-H, March 27, 1939, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off			Accumulated run-off	Date and time	Instantaneous rate of run-off			Accumulated run-off	Date and time	Instantaneous rate of run-off			Accumulated run-off
1939					1940					1940				
Aug. 11					May 17 <sup>9</sup>					June 8				
p. m.	Second-feet	Inches per hour	Inches		a. m.	Second-feet	Inches per hour	Inches		p. m.	Second-feet	Inches per hour	Inches	
10:05-----	1.02	0.279	0.0364		2:08-----	0	0	0		8:26-----	0.03	0.0079	0.0002	
:06-----	.88	.241	.0407		:09-----	T	T			:27-----	.04	.0111	.0004	
:07-----	.71	.195	.0443		:10-----	T	T			:28-----	.04	.0120	.0006	
:08-----	.53	.144	.0471		:11-----	T	.0009			:29-----	.04	.0111	.0008	
:09-----	.41	.112	.0492		:12-----	.01	.0029			:30-----	.04	.0103	.0010	
:10-----	.30	.0817	.0508		:13-----	.02	.0051	.0001		:31-----	.03	.0095	.0012	
:11-----	.20	.0557	.0519		:14-----	.03	.0079	.0002		:32-----	.03	.0087	.0014	
:12-----	.13	.0366	.0527		:15-----	.04	.0120	.0004		:33-----	.03	.0071	.0015	
:13-----	.10	.0284	.0532		:16-----	.06	.0177	.0006		:34-----	.02	.0057	.0016	
:14-----	.07	.0186	.0536		:17-----	.09	.0245	.0010		:35-----	.02	.0045	.0017	
:15-----	.04	.0108	.0538		:18-----	.10	.0281	.0014		:36-----	.01	.0034	.0018	
:16-----	.02	.0067	.0539		:19-----	.10	.0281	.0019		:37-----	.01	.0024		
:17-----	.01	.0024	.0540		:20-----	.10	.0269	.0024		:38-----	.01	.0020		
:18-----	T	.0005			:21-----	.09	.0257	.0028		:39-----	.01	.0016		
:19-----	.01	.0015			:22-----	.09	.0245	.0032		:40-----	T	.0012		
:20-----	T	.0008			:23-----	.09	.0232	.0036		:41-----	T	.0009		
:21-----	T	.0001			:24-----	.07	.0198	.0040		:42-----	T	.0006		
:22-----	0	0	.0540		:25-----	.06	.0167	.0043		:43-----	T	.0003		
					:26-----	.05	.0138	.0046		:44-----	T	.0001		
					:27-----	.04	.0103	.0048		:45-----	T	0		
					:28-----	.03	.0079	.0050		:50-----	0	0	T	.0018

<sup>1</sup> Total rainfall for storm of Apr. 4, 1.36 inches. Soil moist before rain. Hay standing 6 inches high from previous year formed good cover. No erosion occurred.

<sup>2</sup> Total rainfall for storm of May 20, 0.86 inch. Soil dry before rain. Hay 6 inches high. No erosion occurred.

<sup>3</sup> Total rainfall for storm of June 12, 0.37 inch. Soil moist before rain. Hay 6 inches high. No erosion occurred.

<sup>4</sup> Total rainfall for storm of June 15, 0.70 inch. Soil moist before rain. Hay 6 inches high. No erosion occurred.

<sup>5</sup> Total rainfall for storm of June 20, 1.49 inches. Soil moist before rain. Hay 6 inches high. No erosion occurred.

<sup>6</sup> Total rainfall for storm of June 21, 0.24 inch. Soil wet before rain. Hay 6 inches high. No erosion occurred.

<sup>7</sup> Total rainfall for storm of June 25, 0.61 inch. Soil moist and firm before rain. Hay 6 inches high. No erosion occurred.

<sup>8</sup> Total rainfall for storm of Aug. 11, 0.77 inch. Soil dry before rain. Hay 6 inches high. No erosion occurred.

<sup>9</sup> Total rainfall for storm of May 17, 1.56 inches. Soil moist before rain. Well protected by native grasses 5 inches high.

<sup>10</sup> Total rainfall for storm of June 8, 1.08 inches. Soil dry before rain. Well protected by native grasses.

TABLE 29.—Run-off from watershed 2-H, March 27, 1939, to December 31, 1940

LOCATION: Latitude 40°15'54", longitude 98°22'12".

#### PHYSICAL CHARACTERISTICS:

*Drainage area.*—3.40 acres.

*Length of principal watercourse.*—600 feet.

*Topography.*—Undulating, well drained.

*Slope.*—Average slope is 6.7 percent. 8 percent of the watershed has a slope of less than 2 percent; 38 percent, 2 to 5 percent; 25 percent, 5 to 8 percent; 19 percent, 8 to 12 percent; and 10 percent has a slope of 12 percent or more.

*Erosion condition.*—No gullies or depressions. Less than 25 percent of the topsoil has been lost.

*Soil.*—Hastings silt loam, 70 percent; Holdrege silt loam, 30 percent. The Holdrege silt loam is in the lower part of the watershed.

#### LAND USE AND VEGETAL COVER:

*Land use distribution.*—Native meadow, 100 percent.

*Vegetal cover and soil condition.*—The ecological survey made in November 1939 showed a basal cover of 15 percent, of which

9 percent was blue grama, 3 percent was side-oats grama, and 3 percent was other grass. The grasses never averaged over 6 inches in height in the entire period and no hay was harvested from the area because of the extreme drought.

#### MEASUREMENTS:

*Precipitation.*—Rainfall was measured at recording gage C29R before April 20, 1939, and B38R thereafter (fig. 2). Snowfall was measured by weighing and recording rain and snow gages and by cooperative observers' measurements. Snow inventory on the watershed was obtained by inspection.

*Run-off.*—Run-off was measured by an H flume 3 feet deep.

*Changes in instrumentation during period.*—Rain gage C29R was discontinued and B38R installed April 20, 1939.

#### SUMMARY OF RECORDS:

*Run-off.*—Annual run-off amount 1940, 0.006 inch. Maximum rate of run-off 1939, 1.110 inches per hour, August 11; maximum rate 1940, 0.010 inch per hour, May 17.

Date and time	Instantaneous rate of run-off			Accumulated run-off	Date and time	Instantaneous rate of run-off			Accumulated run-off	Date and time	Instantaneous rate of run-off			Accumulated run-off
1939					1939					1939				
Aug. 11 <sup>1</sup>					Aug. 11					Aug. 11				
p. m.	Second-feet	Inches per hour	Inches		p. m.	Second-feet	Inches per hour	Inches		p. m.	Second-feet	Inches per hour	Inches	
9:57-----	0	0	0		10:08-----	3.54	1.03	0.0710		10:19-----	0.34	0.0991	0.1501	
:58-----	.45	.131	.0011		:09-----	3.18	.927	.0873		:20-----	.29	.0837	.1516	
:59-----	.52	.151	.0035		:10-----	2.57	.749	.1013		:21-----	.22	.0656	.1528	
10:00-----	.79	.231	.0067		:11-----	2.16	.630	.1128		:22-----	.14	.0397	.1537	
:01-----	.85	.247	.0107		:12-----	1.65	.481	.1221		:23-----	.14	.0402	.1544	
:02-----	.79	.231	.0147		:13-----	1.27	.370	.1292		:24-----	.10	.0286	.1550	
:03-----	.73	.214	.0184		:14-----	1.06	.309	.1349		:25-----	.06	.0184	.1554	
:04-----	.78	.227	.0221		:15-----	.82	.239	.1395		:26-----	.06	.0184	.1557	
:05-----	1.28	.373	.0271		:16-----	.65	.190	.1431		:27-----	0	0	.1559	
:06-----	2.81	.819	.0370		:17-----	.51	.149	.1459						
:07-----	3.79	1.11	.0532		:18-----	.45	.131	.1482						

See footnotes at end of table.



TABLE 29.—Run-off from watershed 2-H, March 27, 1939, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1940				1940				1940				1940			
May 17				May 17				June 8				June 8			
a. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches
2:21-----	0.03	0.0101	0.0009	2:45-----	T	T		8:15-----	0.01	0.0017		8:39-----	0.01	0.0038	0.0017
:22-----	.03	.0101	.0011	3:00-----	T	T		:16-----	.01	.0015		:40-----	.01	.0034	.0018
:23-----	.03	.0093	.0013	:15-----	T	T		:17-----	T	.0013		:41-----	.01	.0031	.0019
:24-----	.03	.0084	.0014	:30-----	T	0.0003		:18-----	T	.0010		:42-----	.01	.0031	.0020
:25-----	.03	.0076	.0015	:45-----	T	.0003	0.0023	:19-----	T	.0013		:43-----	.01	.0026	
:26-----	.02	.0061	.0016	4:00-----	T	.0006	.0024	:20-----	.01	.0017		:44-----	.01	.0021	
:27-----	.02	.0054	.0017	:15-----	T	.0003	.0025	:21-----	.01	.0021		:45-----	.01	.0017	
:28-----	.01	.0042	.0018	:30-----	T	.0003	.0026	:22-----	.01	.0021		:50-----	T	.0006	.0022
:29-----	.01	.0036	.0019	:45-----	T	.0003	.0027	:23-----	.01	.0021		:55-----	T	.0006	.0023
:30-----	.01	.0031	.0020	5:00-----	T	.0003	.0028	:24-----	.01	.0021		9:00-----	T	.0006	.0024
:31-----	.01	.0026		:15-----	T	.0003	.0029	:25-----	.01	.0021		:15-----	T	.0003	.0025
:32-----	.01	.0021		:30-----	T	T		:26-----	.01	.0031		:30-----	T	.0006	.0026
:33-----	.01	.0017		7:00-----	T	T		:27-----	.01	.0042	0.0004	:45-----	T	.0003	.0027
:34-----	T	.0013		8:00-----	0	0	.0029	:28-----	.02	.0045	.0006	10:00-----	0	0	.0028
:35-----	T	.0012						:29-----	.02	.0050	.0007				
:36-----	T	.0010		June 8 <sup>3</sup>				:30-----	.02	.0054	.0008	Sept. 24 <sup>4</sup>			
:37-----	T	.0008						:31-----	.02	.0061	.0009	a. m.			
:38-----	T	.0006						:32-----	.02	.0065	.0010				
:39-----	T	.0006		p. m.				:33-----	.02	.0068	.0011	2:23-----	0	0	0
:40-----	T	.0005		8:10-----	0	0	0	:34-----	.02	.0061	.0012	:29-----	T	.0006	
:41-----	T	.0004		:11-----	T	.0013		:35-----	.02	.0054	.0013	:30-----	T	.0006	
:42-----	T	.0004		:12-----	.01	.0017		:36-----	.02	.0050	.0014	:35-----	T	.0006	.0001
:43-----	T	.0003		:13-----	.01	.0021		:37-----	.02	.0045	.0015	:40-----	T	.0003	
:44-----	T	.0001		:14-----	.01	.0020		:38-----	.01	.0042	.0016	:41-----	0	0	.0001

<sup>1</sup> Total rainfall for storm of Aug. 11, 0.86 inch. Soil dry before rain. Hay standing 6 inches high formed good cover. No erosion occurred.

<sup>2</sup> Total rainfall for storm of May 17, 1.24 inches. Soil moist before rain. Well protected by native grasses 5 inches high.

<sup>3</sup> Total rainfall for storm of June 8, 1.14 inches. Soil dry before rain. Well protected by native grasses.

<sup>4</sup> Total rainfall for storm of Sept. 24, 0.65 inch. Soil wet from rains of previous days. No hay harvested. Soil well protected.

TABLE 30.—Run-off from watershed 3-H, March 27, 1939 to December 31, 1940

LOCATION: Latitude 40°15'50", longitude 98°22'24".

#### PHYSICAL CHARACTERISTICS:

Drainage area.—3.95 acres.

Length of principal watercourse.—610 feet.

Topography.—Undulating, well drained.

Slope.—Average slope is 6.1 percent. 1 percent of the watershed has a slope of less than 2 percent; 36 percent, 2 to 5 percent; 39 percent, 5 to 8 percent; 19 percent, 8 to 12 percent; and 5 percent has a slope of 12 percent or more.

Erosion condition.—The watershed has occasional small gullies that are filled up by farm operations but appear again during rains that produce run-off. The area has lost 25 to 50 percent of the topsoil.

Soil.—Hastings silt loam, 62 percent; Holdrege silty clay loam, 38 percent. The Holdrege silty clay loam occurs in the lower parts and steeper slopes of the area.

#### LAND USE AND VEGETAL COVER:

Land use distribution.—Cultivated land, 100 percent.

Vegetal cover and soil condition.—The watershed was planted to wheat in the fall of 1938 and remained in wheat in 1939 except where corn strips were planted. The corn and grain strips were reversed in 1940 and planted to corn and oats. Cultural operations in 1939 were as follows:

April 25, strips to be planted to corn single-disked to kill wheat. Wheat remained in the rest of the area.

May 15, corn planted in strips with lister.

June 3, corn cultivated with go-dig cultivator.

June 17, corn cultivated with go-dig cultivator.

June 26, wheat in strips cut. Wheat about 12 inches high. Stubble about 4 inches high remained.

June 29, corn cultivated with shovel cultivator.

August 31, wheat sample indicated a yield of 5.03 bushels an acre.

Cultural operations in 1940 were as follows:

March 28–29, strips to be planted to oats double-disked.

March 30, oats planted in strips with grain drill.

April 15, strips to be planted to corn single-disked.

May 14, corn planted in strips with lister in rows 42 inches apart.

June 7, corn cultivated with go-dig cultivator.

June 20, corn cultivated with go-dig cultivator.

June 29, oats harvested. Yield 10.8 bushels an acre.

August 29, oats strip-tilled about 6 inches deep with wide-shovel duckfoot cultivator.

The corn was a complete failure and was not harvested.

The stalks matured at a height of about 30 inches in 1939 and 4 feet in 1940. The small grain stubble and corn stalks remained on the land for the remainder of each year. Because of grasshoppers and extreme drought, crops were very poor.



TABLE 30.—Run-off from watershed 3—H, March 27, 1939 to December 31, 1940—Continued

## MEASUREMENTS:

*Precipitation.*—Precipitation was measured at recording rain gage C29R before April 20, 1939, and B38R thereafter, and at nonrecording rain gage B35 (fig. 2). Snowfall was measured by weighing and recording rain and snow gages and by co-operative observers' measurements. Snow inventory on the watershed was obtained by inspection.

*Run-off.*—Run-off was measured by an H flume 3 feet deep.

*Changes in instrumentation during period.*—Rain gage C29R to April 20, 1939. Rain gage B38R was installed April 20, 1939, and B35, April 21, 1939.

## SUMMARY OR RECORDS:

*Run-off.*—Annual run-off amount 1940, 0.619 inch. Maximum rate of run-off 1939, 3.640 inches per hour, August 11; maximum rate 1940, 0.156 inch per hour, June 8.

Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off
1939 <sup>1</sup>			1939			1939			1939		
Mar. 30			Apr. 4			Apr. 4			Apr. 4		
p. m.	Second-feet	Inches per hour	a. m.	Second-feet	Inches per hour	p. m.	Second-feet	Inches per hour	p. m.	Second-feet	Inches per hour
12:50	0	0	11:38	0.24	0.0593	12:52	0.22	0.0548	2:47	0.12	0.0299
:55	T	.0003	:39	.22	.0541	:53	.19	.0483	:48	.14	.0341
1:00	T	.0007	:40	.19	.0483	:54	.17	.0438	:49	.16	.0412
:10	T	.0012	:41	.17	.0415	:55	.15	.0387	:50	.20	.0494
:20	.01	.0015	:42	.14	.0354	:56	.13	.0326	:51	.20	.0505
:30	.01	.0020	:43	.12	.0303	:57	.11	.0280	:52	.22	.0540
:40	.01	.0028	:44	.11	.0267	:58	.10	.0254	:53	.23	.0573
:50	.02	.0038	:45	.09	.0236	:59	.09	.0216	:54	.25	.0632
2:00	.02	.0047	:46	.09	.0217	1:00	.08	.0192	:55	.30	.0750
:10	.02	.0047	:47	.08	.0195	:01	.07	.0176	:56	.32	.0797
:20	.02	.0047	:48	.07	.0176	:02	.06	.0155	:57	.34	.0855
:30	.02	.0061	:49	.06	.0155	:03	.05	.0136	:58	.35	.0882
:40	.03	.0074	:50	.05	.0136	:04	.05	.0118	:59	.35	.0871
:50	.03	.0080	:51	.05	.0118	:05	.04	.0105	3:00	.35	.0871
3:00	.03	.0072	:52	.04	.0101	:06	.04	.0098	:01	.35	.0871
:10	.04	.0089	:53	.03	.0085	:07	.04	.0089	:02	.35	.0875
:20	.04	.0103	:54	.03	.0071	:08	.03	.0080	:03	.36	.0891
:25	.04	.0101	:55	.02	.0062	:09	.03	.0071	:04	.36	.0908
:30	.04	.0093	:56	.03	.0066	:10	.03	.0064	:05	.37	.0929
:35	.03	.0087	:57	.03	.0064	:11	.02	.0060	:06	.38	.0959
:40	.04	.0097	:58	.02	.0061	:12	.02	.0055	:07	.39	.0989
:45	.04	.0104	:59	.02	.0058	:13	.02	.0049	:08	.40	.102
:50	.04	.0112	12:00	.02	.0057	:14	.02	.0045	:09	.42	.104
:55	.05	.0120				:15	.02	.0040	:10	.42	.106
4:00	.05	.0128	p. m.			:16	.01	.0036	:11	.42	.106
:05	.05	.0137	12:01	.02	.0059	:17	.01	.0031	:12	.39	.0987
:06	.06	.0141	:02	.02	.0059	:18	.01	.0027	:13	.37	.0939
:07	.06	.0143	:03	.02	.0059	:19	.01	.0023	:14	.36	.0891
:08	.06	.0144	:04	.02	.0059	:20	.01	.0021	:15	.34	.0843
:09	.05	.0134	:05	.02	.0057	:21	.01	.0022	:16	.31	.0777
:10	.05	.0130	:06	.02	.0053	:22	.01	.0020	:17	.28	.0710
:15	.04	.0097	:07	.02	.0051	:23	.01	.0018	:18	.25	.0637
:20	.03	.0085	:08	.02	.0048	:24	.01	.0016	:19	.23	.0575
:25	.03	.0078	:09	.02	.0046	:25	.01	.0015	:20	.21	.0515
:30	.03	.0072	:10	.02	.0047	:26	.01	.0014	:21	.18	.0443
:35	.03	.0072	:11	.03	.0076	:27	.01	.0013	:22	.15	.0387
:40	.03	.0072	:12	.04	.0089	:28	T	.0012	:23	.14	.0352
:45	.03	.0068	:13	.04	.0104	:29	T	.0010	:24	.12	.0304
:50	.03	.0065	:14	.05	.0119	:30	T	.0009	:25	.10	.0250
:55	.02	.0061	:15	.05	.0132	:31	T	.0008	:26	.09	.0218
5:00	.02	.0058	:16	.06	.0141	:32	T	.0006	:27	.07	.0188
:30	.02	.0046	:17	.06	.0151	:33	T	.0005	:28	.07	.0165
6:00	.01	.0030	:18	.06	.0159	:34	T	.0004	:29	.05	.0129
:30	.01	.0018	:19	.06	.0153	:35	T	.0004	:30	.05	.0115
7:00	T	.0011	:20	.06	.0153	:36	T	.0005	:31	.04	.0101
:30	T	.0005	:21	.06	.0153	:37	T	.0005	:32	.03	.0085
8:00	0	0	:22	.06	.0162	:38	T	.0005	:33	.03	.0075
			:23	.08	.0197	:39	T	.0005	:34	.03	.0072
Apr. 4 <sup>2</sup>			:24	.10	.0249	:40	T	.0005	:35	.02	.0062
a. m.			:25	.12	.0308	:41	T	.0004	:36	.02	.0048
11:12	0	0	:26	.16	.0393	:42	T	.0003	:37	.02	.0038
:13	.01	.0030	:27	.20	.0501	:43	T	.0002	:38	.01	.0029
:14	.02	.0048	:28	.28	.0395	:44	T	.0002	:39	.01	.0020
:15	.03	.0070	:29	.34	.0859	:45	T	.0001	:40	.01	.0016
:16	.04	.0100	:30	.36	.0913	:46	T		:41	.01	.0016
:17	.06	.0161	:31	.40	.0992	:47	T		:42	.01	.0014
:18	.11	.0271	:32	.43	.107	:48	0	0	:43	T	.0011
:19	.18	.0449	:33	.48	.119				:44	T	.0009
:20	.23	.0574	:34	.58	.145				:45	T	.0008
:21	.28	.0698	:35	.62	.156				:46	T	.0008
:22	.32	.0796	:36	.66	.164				:47	T	.0006
:23	.34	.0860	:37	.68	.171				:48	T	.0005
:24	.36	.0894	:38	.76	.190				:49	T	.0004
:25	.38	.0942	:39	.78	.195				:50	T	.0003
:26	.39	.0989	:40	.74	.186				:51	T	.0002
:27	.41	.104	:41	.73	.183				:52	T	.0001
:28	.43	.108	:42	.70	.176				:53	0	0
:29	.45	.114	:43	.62	.155						
:30	.46	.116	:44	.56	.140						
:31	.43	.108	:45	.50	.125						
:32	.41	.103	:46	.45	.112						
:33	.37	.0936	:47	.40	.101				Apr. 13 <sup>1</sup>		
:34	.34	.0860	:48	.36	.0892				a. m.		
:35	.32	.0793	:49	.31	.0788				10:35	0	0
:36	.29	.0720	:50	.28	.0698				:36	T	.0005
:37	.26	.0653	:51	.25	.0621				:37	T	.0005
									:38	T	.0006
									:39	T	.0008

See footnotes at end of table, p. 66.



TABLE 30.—Run-off from watershed 3-H, March 27, 1939 to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1939				1939				1939				1939			
Apr. 13				Apr. 13				May 20				May 22			
a. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches
10:40	T	0.0008		12:10	0.01	0.0026	0.0020	5:22	T	0.0009		4:01	0.01	0.0021	0.0021
41	T	.0005		11	.01	.0024		23	T	.0008		02	.01	.0022	
42	T	.0005		12	.01	.0023		24	T	.0007		03	.01	.0022	
43	T	.0005		13	.01	.0022		25	T	.0007		04	.01	.0023	
44	T	.0005		14	.01	.0021		26	T	.0006		05	.01	.0024	
45	T	.0005		15	.01	.0020		27	T	.0006		06	.01	.0025	
46	T	.0005		16	.01	.0020		28	T	.0005		07	.01	.0025	
47	T	.0005		17	.01	.0019		29	T	.0004		08	.01	.0027	
48	T	.0005		18	.01	.0018		30	T	.0004		09	.01	.0027	
49	T	.0005		19	.01	.0017		31	T	.0002		10	.01	.0026	
50	T	.0005		20	.01	.0017		32	T	.0001		11	.01	.0024	
51	T	.0005		21	.01	.0016		33	0	0	.0129	12	.01	.0023	
52	T	.0005		22	.01	.0015						13	.01	.0022	
53	T	.0005		23	.01	.0015		May 22 <sup>4</sup>				14	.01	.0021	
54	T	.0005		24	.01	.0014		a. m.				15	.01	.0020	
55	T	.0005		25	.01	.0014		2:45	0	0	0	16	.01	.0020	
56	T	.0005		26	T	.0012		46	T	.0005		17	.01	.0019	
57	T	.0005		27	T	.0012		47	T	.0005		18	.01	.0018	0.0070
58	T	.0005		28	T	.0012		48	T	.0006		19	.01	.0017	
59	T	.0005		29	T	.0011		49	T	.0008		20	.01	.0017	
11:00	T	.0005		30	T	.0010		50	T	.0008		21	.01	.0016	
01	T	.0006		31	T	.0010		51	T	.0005		22	.01	.0015	
02	T	.0006		32	T	.0010		52	T	.0005		23	.01	.0015	
03	T	.0006		33	T	.0010		53	T	.0005		24	.01	.0014	
04	T	.0006		34	T	.0009		54	0.02	.0051		25	.01	.0014	
05	T	.0007		35	T	.0008		55	.07	.0163	.0002	26	.01	.0012	
06	T	.0006		36	T	.0007		56	.10	.0247	.0005	27	T	.0012	
07	T	.0007		37	T	.0007		57	.09	.0214	.0009	28	T	.0012	
08	T	.0008		38	T	.0007		58	.08	.0202	.0012	29	T	.0011	
09	T	.0007		39	T	.0007		59	.08	.0193	.0015	30	T	.0010	
10	T	.0008		40	T	.0006		3:00	.07	.0185	.0018	31	T	.0010	
11	T	.0008		41	T	.0006		01	.07	.0170	.0021	32	T	.0010	
12	T	.0008		42	T	.0006		02	.06	.0158	.0024	33	T	.0011	
13	T	.0008		43	T	.0005		03	.06	.0147	.0027	34	T	.0010	
14	T	.0009		44	T	.0005		04	.05	.0136	.0029	35	T	.0010	
15	T	.0008		45	T	.0005		05	.05	.0126	.0031	36	T	.0010	
16	T	.0009		46	T	.0005		06	.05	.0118	.0033	37	T	.0010	
17	T	.0010		47	T	.0004		07	.04	.0111	.0035	38	T	.0010	
18	T	.0009		48	T	.0004		08	.04	.0107	.0037	39	T	.0009	
19	T	.0010		49	T	.0004		09	.04	.0101	.0039	40	T	.0010	
20	T	.0010		50	T	.0002		10	.04	.0100	.0041	41	T	.0009	
21	T	.0010		51	T	.0003		11	.04	.0102	.0043	42	T	.0008	
22	T	.0010		52	T	.0003		12	.04	.0100	.0045	43	T	.0009	
23	T	.0010		53	T	.0001		13	.04	.0092	.0047	44	T	.0009	
24	T	.0010		54	T	.0001		14	.03	.0086	.0048	45	T	.0008	
25	T	.0010		55	T	.0001		15	.03	.0080	.0049	46	T	.0008	
26	T	.0011		56	T			16	.03	.0068	.0050	47	T	.0008	
27	T	.0011		57	0	0	.0029	17	.02	.0060	.0051	48	T	.0008	
28	T	.0012						18	.02	.0051	.0052	49	T	.0007	
29	T	.0012		May 20 <sup>3</sup>				19	.02	.0044	.0053	50	T	.0008	
30	T	.0012		a. m.				20	.02	.0038	.0054	51	T	.0007	
31	T	.0013		5:42	0	0	0	21	.01	.0036	.0055	52	T	.0006	
32	T	.0012		43	.10	.0250	.0002	22	.01	.0034	.0056	53	T	.0007	
33	0.01	.0014		44	.11	.0284	.0006	23	.01	.0027		54	T	.0006	
34	.01	.0014		45	.07	.0172	.0010	24	.01	.0023		55	T	.0006	
35	.01	.0015		46	.30	.0755	.0018	25	.01	.0021		56	T	.0006	
36	.01	.0015		47	.26	.0663	.0030	26	.01	.0022		57	T	.0006	
37	.01	.0016		48	.25	.0635	.0041	27	.01	.0020		58	T	.0006	
38	.01	.0016		49	.24	.0610	.0051	28	.01	.0018		59	T	.0004	
39	.01	.0016		50	.22	.0559	.0061	29	.01	.0016		5:00	T	.0005	
40	.01	.0018		51	.19	.0478	.0070	30	.01	.0016		01	T	.0005	
41	.01	.0018		52	.17	.0419	.0077	31	.01	.0018		02	T	.0005	
42	.01	.0018		53	.15	.0377	.0084	32	.01	.0016		03	T	.0004	
43	.01	.0018		54	.13	.0330	.0090	33	.01	.0015		04	T	.0005	
44	.01	.0018		55	.11	.0276	.0095	34	.01	.0016		05	T	.0005	
45	.01	.0019		56	.10	.0244	.0099	35	.01	.0016		06	T	.0005	
46	.01	.0019		57	.09	.0209	.0103	36	.01	.0015		07	T	.0005	
47	.01	.0021		58	.07	.0184	.0106	37	.01	.0015		08	T	.0004	
48	.01	.0022		59	.06	.0158	.0109	38	.01	.0014		09	T	.0004	
49	.01	.0022		6:00	.05	.0133	.0111	39	T	.0012		10	T	.0004	
50	.01	.0022		01	.05	.0118	.0113	40	T	.0012		11	T	.0004	
51	.01	.0023		02	.04	.0104	.0115	41	T	.0012		12	T	.0004	
52	.01	.0023		03	.04	.0095	.0117	42	T	.0012		13	T	.0004	
53	.01	.0023		04	.03	.0085	.0119	43	T	.0011		14	T	.0004	
54	.01	.0025		05	.03	.0074	.0120	44	T	.0011		15	T	.0003	
55	.01	.0025		06	.02	.0056	.0121	45	T	.0011		16	T	.0004	
56	.01	.0025		07	.02	.0044	.0122	46	T	.0011		17	T	.0004	
57	.01	.0027		08	.02	.0038	.0123	47	T	.0011		18	T	.0004	
58	.01	.0027		09	.01	.0032	.0124	48	T	.0011		19	T	.0004	
59	.01	.0026		10	.01	.0027		49	T	.0011		20	T	.0003	
12:00	.01	.0026	0.0015	11	.01	.0025		50	T	.0011		21	T	.0003	
				12	.01	.0022		51	T	.0011		22	T	.0003	
p. m.				13	.01	.0018		52	T	.0011		23	T	.0003	
12:01	.01	.0026		14	.01	.0015		53	T	.0011		24	T	.0003	
02	.01	.0026		15	.01	.0014		54	T	.0011		25	T	.0003	
03	.01	.0026		16	.01	.0014		55	T	.0011		26	T	.0003	
04	.01	.0026		17	.01	.0013		56	.01	.0015		27	T	.0002	
05	.01	.0026		18	T	.0012		57	.01	.0016		28	T	.0002	
06	.01	.0026		19	T	.0010		58	.01	.0018		29	T	.0002	
07	.01	.0026		20	T	.0009		59	.01	.0019		30	T	.0002	
08	.01	.0026		21	T	.0010		4:00	.01	.0029		31	T	.0002	
09	.01	.0026										32	T	.0002	

See footnotes at end of table, p. 66.



TABLE 30.—Run-off from watershed 3-H, March 27, 1939 to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1939				1939				1939				1939			
May 22				June 15 <sup>6</sup>				June 20				June 21 <sup>8</sup>			
a. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches
5:33-----	T	0.0001		3:21-----	0	0	0	1:39-----	2.05	0.516	.3166	7:50-----	0	0	0
:34-----	T	.0002		:22-----	.01	.0030		:40-----	2.11	.530	.3253	:51-----	.28	.0703	.0060
:35-----	T	.0002		:23-----	.03	.0081	.0001	:41-----	2.11	.530	.3341	:52-----	.95	.238	.0032
:36-----	T	.0002		:24-----	.20	.0502	.0006	:42-----	1.88	.473	.3426	:53-----	1.57	.395	.0085
:37-----	T	.0002		:25-----	.89	.224	.0029	:43-----	1.70	.427	.3501	:54-----	1.88	.471	.0157
:38-----	T	.0001		:26-----	2.30	.579	.0096	:44-----	1.55	.389	.3569	:55-----	2.36	.593	.0246
:39-----	T	.0001		:27-----	3.60	.904	.0220	:45-----	1.36	.342	.3630	:56-----	2.54	.636	.0348
:40-----	T	.0002		:28-----	3.93	.987	.0378	:46-----	1.18	.295	.3683	:57-----	2.41	.605	.0451
:41-----	T	.0002		:29-----	4.26	1.07	.0549	:47-----	1.00	.251	.3729	:58-----	2.06	.518	.0545
:42-----	T	.0002		:30-----	4.63	1.16	.0735	:48-----	.86	.216	.3765	:59-----	1.69	.424	.0623
:43-----	T	.0002		:31-----	4.77	1.20	.0932	:49-----	.80	.200	.3803	8:00-----	1.31	.329	.0680
:44-----	T	.0001		:32-----	5.00	1.26	.1136	:50-----	.75	.188	.3835	:01-----	.92	.232	.0733
:45-----	T	T		:33-----	4.47	1.12	.1334	:51-----	.68	.172	.3865	:02-----	.79	.199	.0769
:46-----	T	T		:34-----	4.00	1.00	.1511	:52-----	.57	.144	.3891	:03-----	.58	.146	.0798
:47-----	T	T		:35-----	3.74	.939	.1673	:53-----	.49	.124	.3913	:04-----	.47	.119	.0820
:48-----	T	T		:36-----	2.68	.673	.1807	:54-----	.46	.115	.3933	:05-----	.43	.108	.0839
:49-----	T	T		:37-----	1.90	.477	.1903	:55-----	.39	.0976	.3951	:06-----	.37	.0936	.0856
:50-----	T	T		:38-----	2.30	.578	.1991	:56-----	.32	.0812	.3966	:07-----	.32	.0792	.0870
:51-----	0	0		:39-----	1.96	.483	.2080	:57-----	.27	.0674	.3978	:08-----	.25	.0630	.0882
:52-----	T	T		:40-----	1.73	.434	.2157	:58-----	.22	.0562	.3988	:09-----	.20	.0506	.0891
:53-----	T	T		:41-----	1.69	.424	.2228	:59-----	.18	.0457	.3996	:10-----	.14	.0346	.0898
:54-----	T	T		:42-----	1.65	.414	.2298	2:00-----	.15	.0377	.4003	:11-----	.11	.0287	.0903
:55-----	T	T		:43-----	1.49	.375	.2364	:01-----	.14	.0352	.4009	:12-----	.07	.0175	.0907
:56-----	0	0	0.0679	:44-----	1.33	.334	.2423	:02-----	.12	.0304	.4014	:13-----	.06	.0157	.0910
				:45-----	1.13	.283	.2474	:03-----	.10	.0246	.4019	:14-----	.05	.0120	.0912
				:46-----	.91	.229	.2517	:04-----	.08	.0198	.4023	:15-----	.04	.0089	.0914
				:47-----	.68	.171	.2550	:05-----	.06	.0157	.4026	:16-----	.03	.0070	.0915
				:48-----	.58	.145	.2576	:06-----	.05	.0120	.4028	:17-----	.02	.0052	.0916
				:49-----	.56	.141	.2600	:07-----	.04	.0093	.4030	:18-----	.02	.0042	.0917
				:50-----	.43	.109	.2621	:08-----	.03	.0085	.4031	:19-----	.01	.0030	.0918
				:51-----	.36	.0911	.2638	:09-----	.02	.0063	.4032	:20-----	.01	.0015	.0918
				:52-----	.29	.0739	.2652	:10-----	.01	.0034	.4033		0	0	.0918
				:53-----	.24	.0600	.2663	:11-----	.01	.0030	.4034		0	0	
				:54-----	.22	.0548	.2673	:12-----	.01	.0019					
				:55-----	.19	.0478	.2682	:13-----	T	.0010		June 25 <sup>5</sup>			
				:56-----	.17	.0415	.2689	:14-----	T	T		a. m.			
				:57-----	.14	.0362	.2695	:15-----	T	T		1:23-----	0	0	0
				:58-----	.14	.0345	.2701	:16-----	0	0	.4034	:24-----	.82	.206	.0017
				:59-----	.13	.0318	.2707					:25-----	1.28	.321	.0061
				4:00-----	.11	.0279	.2712					:26-----	1.46	.367	.0118
				:01-----	.09	.0222	.2716	4:20-----	0	0	0	:27-----	1.85	.465	.0187
				:02-----	.07	.0182	.2719	:21-----	.08	.0189	.0002	:28-----	2.28	.571	.0273
				:03-----	.06	.0157	.2722	:22-----	.17	.0437	.0007	:29-----	2.26	.567	.0368
				:04-----	.05	.0124	.2724	:23-----	.30	.0756	.0017	:30-----	2.05	.514	.0458
				:05-----	.04	.0097	.2726	:24-----	.73	.182	.0038	:31-----	1.88	.472	.0540
				:06-----	.04	.0098	.2728	:25-----	1.13	.284	.0077	:32-----	1.52	.382	.0611
				:07-----	.04	.0089	.2730	:26-----	1.37	.345	.0129	:33-----	1.22	.306	.0668
				:08-----	.03	.0080	.2731	:27-----	1.52	.381	.0190	:34-----	.98	.245	.0714
				:09-----	.03	.0071	.2732	:28-----	1.62	.406	.0256	:35-----	.85	.214	.0752
				:10-----	.02	.0059	.2733	:29-----	1.65	.414	.0324	:36-----	.76	.191	.0786
				:11-----	.02	.0042	.2734	:30-----	1.57	.395	.0391	:37-----	.70	.176	.0817
				:12-----	.01	.0036	.2735	:31-----	1.41	.354	.0453	:38-----	.64	.160	.0845
				:13-----	.02	.0038	.2736	:32-----	1.16	.291	.0507	:39-----	.56	.141	.0870
				:14-----	.01	.0034	.2737	:33-----	1.05	.264	.0553	:40-----	.49	.124	.0892
				:15-----	.01	.0027		:34-----	1.12	.282	.0598	:41-----	.43	.108	.0911
				:16-----	.01	.0017		:35-----	1.32	.332	.0649	:42-----	.38	.0928	.0945
				:17-----	T	.0012		:36-----	1.66	.418	.0711	:43-----	.33	.0840	.0943
				:18-----	T	.0010		:37-----	1.94	.487	.0786	:44-----	.29	.0725	.0956
				:19-----	T	.0008		:38-----	2.15	.540	.0872	:45-----	.24	.0605	.0967
				:20-----	T	.0007		:39-----	2.11	.530	.0961	:46-----	.21	.0520	.0976
				:21-----	T	.0008		:40-----	1.99	.500	.1047	:47-----	.18	.0448	.0984
				:22-----	T	.0006		:41-----	1.82	.456	.1127	:48-----	.17	.0433	.0991
				:23-----	T	.0005		:42-----	1.54	.385	.1197	:49-----	.16	.0403	.0998
				:24-----	T	.0004		:43-----	1.34	.337	.1257	:50-----	.15	.0375	.1004
				:25-----	T	.0002		:44-----	1.14	.288	.1308	:51-----	.14	.0354	.1010
				:26-----	0	0	.2739	:45-----	1.06	.267	.1354	:52-----	.13	.0332	.1016
				June 20 <sup>7</sup>				:46-----	.91	.230	.1395	:53-----	.12	.0308	.1021
				p. m.				:47-----	.78	.195	.1430	:54-----	.12	.0289	.1026
				1:15-----	0	0	0	:48-----	.70	.176	.1461	:55-----	.11	.0271	.1031
				:16-----	.67	.169	.0014	:49-----	.60	.151	.1488	:56-----	.10	.0256	.1035
				:17-----	2.16	.542	.0073	:50-----	.52	.131	.1512	:57-----	.10	.0243	.1039
				:18-----	2.47	.620	.0170	:51-----	.39	.0996	.1531	:58-----	.09	.0230	.1043
				:19-----	2.31	.580	.0270	:52-----	.28	.0714	.1545	:59-----	.09	.0215	.1047
				:20-----	2.06	.518	.0361	:53-----	.24	.0600	.1556	2:00-----	.08	.0202	.1050
				:21-----	1.93	.486	.0445	:54-----	.21	.0538	.1565	:01-----	.08	.0191	.1053
				:22-----	1.96	.492	.0526	:55-----	.17	.0424	.1573	:02-----	.07	.0179	.1056
				:23-----	2.34	.588	.0616	:56-----	.14	.0343	.1579	:03-----	.07	.0166	.1059
				:24-----	2.74	.687	.0722	:57-----	.11	.0288	.1584	:04-----	.06	.0154	.1062
				:25-----	4.13	1.04	.0866	:58-----	.08	.0211	.1588	:05-----	.06	.0143	.1064
				:26-----	6.81	1.71	.1095	:59-----	.07	.0178	.1591	:06-----	.05	.0132	.1066
				:27-----	7.19	1.80	.1388	5:00-----	.06	.0139	.1594	:07-----	.05	.0122	.1068
				:28-----	5.27	1.32	.1683	:01-----	.04	.0101	.1596	:08-----	.04	.0111	.1070
				:29-----	5.27	1.32	.1945	:02-----	.03	.0077	.1597	:09-----	.04	.0101	.1072
				:30-----	4.18	1.05	.2153	:03-----	.03	.0071	.1598	:10-----	.04	.0092	.1074
				:31-----	3.47	.871	.2320	:04-----	.02	.0047	.1599	:11-----	.03	.0083	.1075
				:32-----	3.19	.801	.2462	:05-----	.01	.0022	.1600	:12-----	.03	.0074	.1076
				:33-----	2.95	.741	.2590	:06-----	.01	.0019		:13-----	.03	.0066	.1077
				:34-----	2.69	.675	.2708	:07-----	.01	.0014		:14-----	.02	.0057	.1078
				:35-----	2.41	.605	.2815	:08-----	T	.0008		:15-----	.02	.0050	.1079
				:36-----	2.24	.562	.2912	:09-----	T	.0002		:16-----	.02	.0047	.1080
				:37-----	2.05	.515	.3002	:10-----	T	.0002		:17-----	.02	.0042	.1081
				:38-----	1.88	.473	.3084	:11-----	0	0	.1600	:18-----	.02	.0038	.1082
								:12-----	0	0		:19-----	.01	.0034	.1084

See footnotes at end of table, p. 66.



TABLE 30.—Run-off from watershed 3—H, March 27, 1939 to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1939															
June 25				1939				1939				1939			
Aug. 7				Aug. 7				Aug. 7				Aug. 7			
a. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches
2:20	0.01	0.0029	0.1084	5:21	0.02	0.0047	0.0043	6:53	0.06	0.0139	0.0721	8:25	0.06	0.0153	0.0903
:21	.01	.0025		:22	.02	.0047	.0044	:54	.05	.0135	.0723	:26	.06	.0153	.0906
:22	.01	.0022		:23	.02	.0047	.0045	:55	.05	.0132	.0725	:27	.06	.0153	.0909
:23	.01	.0018		:24	.02	.0047	.0046	:56	.05	.0128	.0727	:28	.06	.0153	.0912
:24	.01	.0015		:25	.03	.0076	.0047	:57	.05	.0125	.0729	:29	.06	.0153	.0915
:25	T	.0012		:26	.05	.0122	.0049	:58	.05	.0122	.0731	:30	.06	.0153	.0918
:26	T	.0010		:27	.13	.0327	.0053	:59	.05	.0118	.0733	:31	.06	.0153	.0921
:27	T	.0008		:28	.30	.0758	.0062	7:00	.05	.0115	.0735	:32	.06	.0153	.0924
:28	T	.0005		:29	.43	.107	.0077	:01	.04	.0111	.0737	:33	.06	.0153	.0927
:29	T	.0002		:30	.53	.132	.0097	:02	.04	.0108	.0739	:34	.06	.0153	.0930
:30	T	T		:31	.78	.196	.0124	:03	.04	.0105	.0741	:35	.06	.0153	.0933
:31	0	0	.1086	:32	.78	.195	.0157	:04	.04	.0102	.0743	:36	.06	.0153	.0936
Aug. 1 <sup>10</sup>				:33	.73	.182	.0188	:05	.04	.0099	.0745	:37	.06	.0153	.0939
p. m.				:34	.65	.164	.0217	:06	.04	.0096	.0747	:38	.06	.0153	.0942
7:53	0	0	0	:35	.59	.147	.0243	:07	.04	.0093	.0749	:39	.06	.0153	.0945
:54	.50	.126	.0010	:36	.50	.125	.0266	:08	.04	.0090	.0751	:40	.06	.0156	.0948
:55	1.37	.345	.0049	:37	.42	.105	.0285	:09	.03	.0087	.0752	:41	.07	.0164	.0951
:56	2.20	.552	.0124	:38	.33	.0832	.0301	:10	.03	.0085	.0753	:42	.07	.0170	.0954
:57	2.26	.567	.0217	:39	.27	.0672	.0314	:11	.03	.0084	.0754	:43	.07	.0175	.0957
:58	2.12	.533	.0309	:40	.25	.0638	.0325	:12	.03	.0083	.0755	:44	.07	.0181	.0960
:59	1.98	.498	.0395	:41	.25	.0639	.0336	:13	.03	.0081	.0756	:45	.07	.0187	.0963
8:00	1.82	.457	.0475	:42	.25	.0624	.0347	:14	.03	.0080	.0757	:46	.08	.0193	.0966
:01	1.64	.412	.0547	:43	.24	.0609	.0357	:15	.03	.0078	.0758	:47	.08	.0200	.0969
:02	1.40	.352	.0611	:44	.24	.0597	.0367	:16	.03	.0076	.0759	:48	.08	.0206	.0972
:03	1.12	.281	.0664	:45	.23	.0582	.0377	:17	.03	.0075	.0760	:49	.08	.0212	.0975
:04	.78	.196	.0704	:46	.23	.0566	.0387	:18	.03	.0074	.0761	:50	.09	.0222	.0979
:05	.57	.142	.0732	:47	.22	.0552	.0396	:19	.03	.0072	.0762	:51	.10	.0239	.0983
:06	.44	.111	.0753	:48	.21	.0536	.0405	:20	.03	.0072	.0763	:52	.10	.0252	.0987
:07	.38	.0944	.0770	:49	.21	.0524	.0414	:21	.03	.0072	.0764	:53	.11	.0265	.0991
:08	.29	.0737	.0784	:50	.20	.0512	.0422	:22	.03	.0072	.0765	:54	.11	.0281	.0996
:09	.26	.0650	.0796	:51	.20	.0503	.0430	:23	.03	.0072	.0766	:55	.12	.0295	.1001
:10	.23	.0578	.0806	:52	.20	.0493	.0438	:24	.03	.0072	.0767	:56	.12	.0309	.1006
:11	.19	.0485	.0815	:53	.19	.0481	.0446	:25	.03	.0072	.0768	:57	.13	.0326	.1011
:12	.16	.0412	.0822	:54	.19	.0473	.0454	:26	.03	.0072	.0769	:58	.14	.0343	.1017
:13	.15	.0369	.0828	:55	.18	.0463	.0462	:27	.03	.0072	.0770	:59	.14	.0357	.1023
:14	.13	.0322	.0834	:56	.18	.0453	.0470	:28	.03	.0072	.0771	9:00	.15	.0371	.1029
:15	.11	.0278	.0839	:57	.18	.0446	.0478	:29	.03	.0072	.0772	:01	.15	.0373	.1035
:16	.09	.0235	.0843	:58	.17	.0436	.0485	:30	.03	.0070	.0773	:02	.15	.0378	.1041
:17	.08	.0196	.0847	:59	.17	.0426	.0492	:31	.03	.0066	.0774	:03	.15	.0386	.1047
:18	.07	.0170	.0850	6:00	.17	.0416	.0499	:32	.03	.0064	.0775	:04	.16	.0391	.1053
:19	.06	.0155	.0853	:01	.16	.0407	.0506	:33	.02	.0061	.0776	:05	.16	.0395	.1060
:20	.05	.0132	.0855	:02	.16	.0399	.0513	:34	.02	.0058	.0777	:06	.16	.0400	.1067
:21	.04	.0101	.0857	:03	.15	.0389	.0520	:35	.02	.0059	.0778	:07	.16	.0407	.1074
:22	.03	.0081	.0859	:04	.15	.0381	.0526	:36	.03	.0077	.0779	:08	.16	.0412	.1081
:23	.03	.0071	.0860	:05	.15	.0370	.0532	:37	.03	.0085	.0780	:09	.17	.0420	.1088
:24	.02	.0056	.0861	:06	.14	.0363	.0538	:38	.04	.0094	.0782	:10	.17	.0426	.1095
:25	.02	.0042	.0862	:07	.14	.0356	.0544	:39	.04	.0103	.0784	:11	.17	.0434	.1102
:26	.01	.0030	.0863	:08	.14	.0349	.0550	:40	.04	.0109	.0786	:12	.17	.0439	.1109
:27	.01	.0019		:09	.14	.0339	.0556	:41	.04	.0109	.0788	:13	.18	.0446	.1116
:28	T	.0010		:10	.13	.0332	.0562	:42	.04	.0112	.0790	:14	.18	.0451	.1123
:29	T	.0004		:11	.13	.0327	.0568	:43	.05	.0115	.0792	:15	.18	.0458	.1131
:30	0	0	.0864	:12	.13	.0322	.0573	:44	.05	.0118	.0794	:16	.18	.0464	.1139
Aug. 7 <sup>11</sup>				:13	.13	.0314	.0578	:45	.05	.0122	.0796	:17	.19	.0471	.1147
p. m.				:14	.12	.0310	.0583	:46	.05	.0125	.0798	:18	.19	.0476	.1155
4:47	0	0	0	:15	.12	.0305	.0588	:47	.05	.0128	.0800	:19	.19	.0484	.1163
:48	.08	.0192	.0002	:16	.12	.0300	.0593	:48	.05	.0132	.0802	:20	.19	.0484	.1171
:49	.08	.0214	.0005	:17	.12	.0296	.0598	:49	.05	.0135	.0804	:21	.19	.0475	.1179
:50	.07	.0167	.0008	:18	.12	.0290	.0603	:50	.05	.0138	.0806	:22	.19	.0468	.1187
:51	.05	.0120	.0010	:19	.11	.0285	.0608	:51	.06	.0138	.0808	:23	.18	.0463	.1195
:52	.04	.0096	.0012	:20	.11	.0279	.0613	:52	.06	.0140	.0810	:24	.18	.0455	.1203
:53	.04	.0095	.0014	:21	.11	.0270	.0618	:53	.06	.0142	.0812	:25	.18	.0450	.1211
:54	.03	.0087	.0016	:22	.10	.0263	.0622	:54	.06	.0144	.0814	:26	.18	.0443	.1218
:55	.03	.0074	.0017	:23	.10	.0256	.0626	:55	.06	.0146	.0816	:27	.17	.0438	.1225
:56	.02	.0056	.0018	:24	.10	.0250	.0630	:56	.06	.0148	.0818	:28	.17	.0430	.1232
:57	.02	.0050	.0019	:25	.10	.0243	.0634	:57	.06	.0149	.0820	:29	.17	.0425	.1239
:58	.02	.0059	.0020	:26	.09	.0236	.0638	:58	.06	.0151	.0822	:30	.17	.0418	.1246
:59	.02	.0059	.0021	:27	.09	.0228	.0642	:59	.06	.0153	.0825	:31	.16	.0414	.1253
5:00	.02	.0058	.0022	:28	.09	.0221	.0646	8:00	.06	.0154	.0828	:32	.16	.0406	.1260
:01	.02	.0056	.0023	:29	.09	.0214	.0650	:01	.06	.0153	.0831	:33	.16	.0401	.1267
:02	.02	.0054	.0024	:30	.08	.0210	.0654	:02	.06	.0153	.0834	:34	.16	.0393	.1274
:03	.02	.0053	.0025	:31	.08	.0210	.0658	:03	.06	.0153	.0837	:35	.15	.0388	.1280
:04	.02	.0052	.0026	:32	.08	.0208	.0661	:04	.06	.0153	.0840	:36	.15	.0382	.1286
:05	.02	.0051	.0027	:33	.08	.0206	.0664	:05	.06	.0153	.0843	:37	.15	.0377	.1292
:06	.02	.0050	.0028	:34	.08	.0203	.0667	:06	.06	.0153	.0846	:38	.15	.0370	.1298
:07															



TABLE 30.—Run-off from watershed 3-H, March 27, 1939 to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1939				1939				1939				1940			
Aug. 7				Aug. 7				Aug. 8				Feb. 13			
p. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches
9:57	0.10	0.0247	0.1394	11:29	0.02	0.0046	0.1591	12:57	T	0	0	4:45	T	0.0011	0.0005
:58	.10	.0242	.1398	:30	.02	.0046	.1592	:58	0	0	0	5:00	T	.0011	.0008
:59	.09	.0238	.1402	:31	.02	.0045	.1593					6:00	T	.0011	.0019
10:00	.09	.0233	.1406	:32	.02	.0045	.1594	Aug. 11 <sup>12</sup>				7:00	T	.0008	.0029
:01	.09	.0230	.1410	:33	.02	.0043	.1595	p. m.				8:00	T	.0005	.0035
:02	.09	.0226	.1414	:34	.02	.0042	.1596	9:54	0	0	0	9:00	T	.0037	.0037
:03	.09	.0225	.1418	:35	.02	.0042	.1597	:55	3.92	984	.0082	10:00	0	0	.0037
:04	.09	.0223	.1422	:36	.02	.0042	.1598	:56	8.74	2.19	.0347	Feb. 14 <sup>1</sup>			
:05	.09	.0219	.1426	:37	.02	.0039	.1599	:57	9.97	2.50	.0738	p. m.			
:06	.09	.0215	.1430	:38	.02	.0039	.1600	:58	11.6	2.92	.1190	3:20	0	0	0
:07	.09	.0214	.1434	:39	.02	.0039	.1601	:59	14.5	3.64	.1737	:21	T	T	
:08	.08	.0211	.1438	:40	.02	.0038	.1602	10:00	14.3	3.59	.2339	:22	T	.0005	
:09	.08	.0207	.1441	:41	.01	.0037	.1603	:01	10.5	2.63	.2857	:23	T	.0007	
:10	.08	.0206	.1444	:42	.01	.0037	.1604	:02	8.06	2.02	.3245	:24	T	.0008	
:11	.08	.0203	.1447	:43	.01	.0035	.1605	:03	8.00	2.01	.3581	:25	T	.0008	
:12	.08	.0198	.1450	:44	.01	.0035	.1606	:04	6.66	1.67	.3898	:30	T	.0005	
:13	.08	.0197	.1453	:45	.01	.0035	.1607	:05	5.43	1.36	.4141	4:00	T	.0005	.0002
:14	.08	.0194	.1456	:46	.01	.0034	.1608	:06	5.09	1.28	.4361	5:00	T	.0003	.0006
:15	.08	.0190	.1459	:47	.01	.0034	.1609	:07	4.11	1.03	.4553	6:00	T	.0003	.0009
:16	.07	.0188	.1462	:48	.01	.0032	.1610	:08	2.72	.683	.4696	7:00	T	T	.0011
:17	.07	.0184	.1465	:49	.01	.0031	.1611	:09	1.80	.452	.4791	8:00	0	0	.0011
:18	.07	.0183	.1468	:50	.01	.0031	.1612	:10	.97	.244	.4849				
:19	.07	.0180	.1471	:51	.01	.0031	.1613	:11	.87	.218	.4887	Feb. 15 <sup>1</sup>			
:20	.07	.0178	.1474	:52	.01	.0030		:12	.70	.175	.4920	p. m.			
:21	.07	.0174	.1477	:53	.01	.0029		:13	1.10	.277	.4958	2:34	0	0	0
:22	.07	.0172	.1480	:54	.01	.0029		:14	.81	.204	.4998	:35	T	T	
:23	.07	.0170	.1483	:55	.01	.0027		:15	.74	.185	.5030	:36	T	T	
:24	.07	.0166	.1486	:56	.01	.0028		:16	.58	.146	.5058	:37	T	.0003	
:25	.07	.0165	.1489	:57	.01	.0027		:17	.50	.127	.5081	:38	T	.0003	
:26	.06	.0162	.1492	:58	.01	.0026		:18	.42	.107	.5100	:39	T	.0003	
:27	.06	.0158	.1495	:59	.01	.0026		:19	.38	.0949	.5117	:40	T	.0004	
:28	.06	.0157	.1498	12:00	.01	.0026	.1617	:20	.35	.0868	.5132	:45	T	.0005	
:29	.06	.0154	.1501	Aug. 8				:21	.31	.0784	.5146	:46	T	.0005	.0001
:30	.06	.0151	.1504	a. m.				:22	.28	.0708	.5158	:47	T	.0005	.0006
:31	.06	.0149	.1506	12:01	.01	.0025		:23	.26	.0663	.5169	:48	T	.0005	.0010
:32	.06	.0145	.1508	:02	.01	.0025		:24	.24	.0612	.5180	:49	T	.0003	.0013
:33	.06	.0144	.1510	:03	.01	.0023		:25	.22	.0554	.5190	5:00	T	.0003	.0015
:34	.06	.0142	.1512	:04	.01	.0022		:26	.19	.0478	.5199	6:00	T	T	.0015
:35	.06	.0140	.1514	:05	.01	.0022		:27	.17	.0423	.5207	7:00	0	0	.0015
:36	.05	.0136	.1516	:06	.01	.0022		:28	.16	.0403	.5214	8:00			
:37	.05	.0135	.1518	:07	.01	.0022		:29	.15	.0375	.5220	Feb. 27 <sup>1</sup>			
:38	.05	.0132	.1520	:08	.01	.0020		:30	.14	.0345	.5226	p. m.			
:39	.05	.0129	.1522	:09	.01	.0021		:31	.13	.0318	.5232	1:32	0	0	0
:40	.05	.0128	.1524	:10	.01	.0021		:32	.12	.0290	.5237	:33	T	T	
:41	.05	.0126	.1526	:11	.01	.0019		:33	.11	.0265	.5242	:34	T	T	
:42	.05	.0122	.1528	:12	.01	.0019		:34	.10	.0240	.5246	:35	T	.0003	
:43	.05	.0122	.1530	:13	.01	.0017		:35	.09	.0219	.5250	:45	T	.0005	.0001
:44	.05	.0119	.1532	:14	.01	.0018		:36	.08	.0203	.5254	2:00	T	.0008	.0003
:45	.05	.0116	.1534	:15	.01	.0018		:37	.07	.0188	.5257	:15	T	.0008	.0003
:46	.05	.0114	.1536	:16	.01	.0017		:38	.07	.0171	.5260	:30	T	.0011	.0007
:47	.04	.0111	.1538	:17	.01	.0017		:39	.06	.0155	.5263	:45	T	.0008	.0005
:48	.04	.0110	.1540	:18	.01	.0015		:40	.06	.0141	.5265	3:00	T	.0008	.0011
:49	.04	.0109	.1542	:19	.01	.0015		:41	.05	.0132	.5267	4:00	T	.0011	.0021
:50	.04	.0106	.1544	:20	.01	.0015		:42	.05	.0122	.5269	5:00	T	.0011	.0033
:51	.04	.0103	.1546	:21	.01	.0015		:43	.04	.0111	.5271	6:00	T	.0008	.0043
:52	.04	.0102	.1548	:22	.01	.0014		:44	.04	.0101	.5273	7:00	T	.0008	.0050
:53	.04	.0100	.1550	:23	.01	.0013		:45	.04	.0092	.5275	8:00	T	.0005	.0056
:54	.04	.0097	.1552	:24	.01	.0013		:46	.03	.0083	.5276	9:00	T	T	.0053
:55	.04	.0096	.1554	:25	T	.0012		:47	.03	.0074	.5277	10:00	0	0	.0053
:56	.04	.0094	.1556	:26	T	.0012		:48	.03	.0066	.5278	Feb. 28 <sup>1</sup>			
:57	.04	.0091	.1558	:27	T	.0012		:49	.02	.0057	.5279	a. m.			
:58	.04	.0090	.1560	:28	T	.0011		:50	.02	.0050	.5280	9:47	0	0	0
:59	.04	.0088	.1561	:29	T	.0011		:51	.02	.0047	.5281	:48	T	.0011	
11:00	.03	.0085	.1562	:30	T	.0010		:52	.02	.0042	.5282	:49	.01	.0015	
:01	.03	.0083	.1563	:31	T	.0010		:53	.02	.0038	.5283	:50	.01	.0017	
:02	.03	.0080	.1564	:32	T	.0010		:54	.01	.0034	.5284	10:00	.01	.0018	.0003
:03	.03	.0080	.1565	:33	T	.0009		:55	.01	.0029		:30	.01	.0018	.0011
:04	.03	.0078	.1566	:34	T	.0008		:56	.01	.0025		:45	.01	.0015	.0013
:05	.03	.0076	.1567	:35	T	.0008		:57	.01	.0022		11:00	T	.0011	.0018
:06	.03	.0073	.1568	:36	T	.0008		:58	.01	.0018		:30	T	.0005	.0022
:07	.03	.0072	.1569	:37	T	.0007		:59	.01	.0015		12:00	T	.0005	.0024
:08	.03	.0070	.1570	:38	T	.0007		11:00	T	.0012		p. m.			
:09	.03	.0067	.1571	:39	T	.0007		:01	T	.0012		1:00	T	.0005	.0029
:10	.03	.0067	.1572	:40	T	.0006		:02	T	.0012		2:00	T	.0008	.0033
:11	.03	.0064	.1573	:41	T	.0006		:03	T	.0005		3:00	T	.0008	.0043
:12	.02	.0062	.1574	:42	T	.0006		:04	T	.0005		4:00	T	.0008	.0051
:13	.02	.0061	.1575	:43	T	.0006		:05	T	.0002		5:00	T	.0008	.0059
:14	.02	.0059	.1576	:44	T	.0004		:06	T	.0002		6:00	T	.0005	.0063
:15	.02	.0056	.1577	:45	T	.0005		:07	T	.0001		7:00	T	.0003	.0069
:16	.02	.0057	.1578	:46	T	.0005		:08	0	0	.5287	8:00	T	T	.0071
:17	.02	.0056	.1579	:47	T	.0004		1940				9:00	0	0	.0071
:18	.02	.0054	.1580	:48	T	.0003		Feb. 13 <sup>1</sup>				Feb. 29 <sup>1</sup>			
:19	.02	.0053	.1581	:49	T	.0002		p. m.				a. m.			
:20	.02	.0053	.1582	:50	T	.0003		4:01	0	0	0	10:45	0	0	0
:21	.02	.0053	.1583	:51	T	.0003		:05	T	T		11:00	T	T	
:22	.02	.0051	.1584	:52	T	.0001		:10	T	.0005		:15	T	.0003	
:23	.02	.0051	.1585	:53	T	.0001		:15	T	.0008					
:24	.02	.0050	.1586	:54	T	.0001		:30	T	.0011	.0002				
:25	.02	.0048	.1587	:55	T										
:26	.02	.0048	.1588	:56	T										
:27	.02	.0048	.1589												
:28	.02	.0046	.1590												



TABLE 30.—Run-off from watershed 3-H, March 27, 1939 to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1940				1940				1940				1940			
Feb. 29				Mar. 5				Mar. 8				Mar. 16 <sup>1</sup>			
a. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches
11:30	T	0.0003	0.0001	8:55	0.03	0.0087	0.0079	9:00	T	0.0005	0.0200	8:00	0	0	0
:45	T	.0005	.0002	9:00	.03	.0087	.0086	10:00	T	.0202	.0202	:05	T	.0005	.0005
12:00	T	.0005	.0003	:15	.03	.0072	.0106	11:00	0	0	0	:15	.01	.0018	.0002
p. m.				:30	.03	.0072	.0124	Mar. 9 <sup>1</sup>				:30	.01	.0036	.0009
12:15	T	.0008	.0005	:35	.02	.0059	.0130	a. m.				:45	.02	.0047	.0019
:30	T	.0011	.0007	:40	.02	.0047	.0134	8:56	0	0	0	9:00	.02	.0059	.0032
:45	0.01	.0015	.0010	:45	.02	.0047	.0138	:57	T	.0005		10:00	.02	.0059	.0092
1:00	.01	.0018	.0014	10:00	.02	.0041	.0149	:58	T	.0008		11:00	.02	.0059	.0152
:15	.01	.0018	.0018	11:00	.01	.0036	.0187	9:00	T	.0008		:05	.03	.0072	.0158
:30	.01	.0018	.0022	:15	.01	.0036	.0196	10:00	T	.0005	.0006	:15	.03	.0072	.0170
:45	.01	.0018	.0026	:30	.02	.0047	.0208	11:00	T	.0005	.0011	:20	.03	.0087	.0177
2:00	.01	.0022	.0031	:45	.02	.0053	.0218	12:00	T	.0011	.0019	:25	.02	.0059	.0185
5:00	.01	.0022	.0097	12:00	.01	.0036	.0229					:30	.05	.0118	.0190
6:00	.01	.0018	.0117	p. m.								:35	.05	.0135	.0201
7:00	T	.0011	.0131	1:00	.02	.0047	.0271	12:15	.01	.0018	.0023	:45	.05	.0135	.0223
8:00	T	.0005	.0139	2:00	.02	.0059	.0324	:30	.01	.0022	.0028	:50	.06	.0153	.0235
9:00	T	T	.0141	3:00	.02	.0059	.0383	:45	.01	.0026	.0034	:55	.05	.0135	.0247
10:00	0	0	.0141	4:00	.02	.0053	.0439	1:00	.01	.0022	.0040	12:00	.06	.0153	.0259
Mar. 1 <sup>13</sup>				5:00	.02	.0047	.0489	:15	.02	.0041	.0048	p. m.			
a. m.				6:00	.01	.0036	.0531	5:00	.02	.0041	.0201	12:05	.06	.0153	.0272
9:48	0	0	0	7:00	.01	.0026	.0562	6:00	.01	.0036	.0239	:10	.09	.0236	.0288
:49	.01	.0018		8:00	.01	.0018	.0584	7:00	.01	.0026	.0270	:15	.09	.0236	.0308
:50	.01	.0018		9:00	T	.0011	.0589	8:00	.01	.0018	.0292	:20	.09	.0214	.0327
10:00	.01	.0018	.0003	10:00	T	.0005	.0606	9:00	T	.0011	.0306	:30	.09	.0214	.0363
11:00	.01	.0018	.0021	11:00	T	T	.0608	10:00	T	.0005	.0314	:35	.08	.0203	.0380
12:00	.01	.0015	.0037	12:00	0	0	.0608	11:00	T	T	.0316	:40	.08	.0203	.0397
p. m.				Mar. 6 <sup>1</sup>				12:00	0	0	.0316	:45	.13	.0336	.0419
1:00	.01	.0015	.0052	a. m.				Mar. 15 <sup>1</sup>				:50	.12	.0309	.0446
:30	.01	.0015	.0060	9:59	0	0	0	p. m.				:55	.11	.0284	.0471
:35	.01	.0015	.0061	10:00	.01	.0031	.0031	2:31	0	0	0	1:00	.11	.0284	.0495
:40	.01	.0031	.0063	11:00	.01	.0031	.0031	:32	T	.0004		:05	.10	.0258	.0518
:45	.01	.0031	.0066	12:00	.01	.0031	.0062	:33	T	.0002		:10	.12	.0309	.0542
2:00	.01	.0018	.0072	p. m.				:34	T	T		:15	.11	.0284	.0567
3:00	.01	.0018	.0090	1:00	.01	.0031	.0093	:35	T	T		:20	.08	.0192	.0587
4:00	.01	.0015	.0106	2:00	.01	.0036	.0127	:36	T	T		:25	.08	.0203	.0603
5:00	.01	.0018	.0122	3:00	.01	.0031	.0161	:37	0	0		:30	.08	.0203	.0620
6:00	.01	.0015	.0138	6:00	.01	.0031	.0254	:38	0	0		:35	.08	.0192	.0636
7:00	T	.0011	.0151	7:00	.01	.0026	.0282	:39	T	.0013	.0001	:55	.08	.0192	.0700
8:00	T	.0005	.0159	8:00	.01	.0022	.0306	:40	.06	.0148	.0001	2:00	.10	.0258	.0719
9:00	T	T	.0161	9:00	.01	.0022	.0328	:41	.05	.0135	.0003	:05	.09	.0214	.0739
10:00	0	0	.0161	10:00	T	.0011	.0344	:42	.05	.0135	.0005	:10	.11	.0284	.0760
Mar. 4 <sup>1</sup>				11:00	T	.0003	.0351	:43	.05	.0129	.0007	:15	.12	.0309	.0785
a. m.				12:00	0	0	.0353	:44	.05	.0126	.0009	:20	.11	.0284	.0810
10:01	0	0	0	Mar. 7 <sup>1</sup>				:45	.05	.0127	.0011	:25	.11	.0284	.0834
:02	.01	.0036	.0001	a. m.				:50	.05	.0127	.0022	:30	.10	.0258	.0857
:03	.02	.0047	.0002	8:53	0	0	0	:55	.05	.0127	.0033	:35	.07	.0182	.0875
:04	.02	.0047	.0002	:54	T	.0003		:55	.05	.0127	.0033	:40	.07	.0172	.0890
:05	.02	.0047	.0003	:55	T	.0005		:55	.05	.0127	.0033	:45	.07	.0172	.0904
:10	.01	.0026	.0006	9:00	T	.0005		:55	.05	.0127	.0033	:50	.06	.0153	.0944
:15	.01	.0031	.0008	10:00	T	.0008	.0006	1:00	.05	.0135	.0068	:55	.06	.0144	.1092
:20	.01	.0022	.0010	11:00	T	.0008	.0022	:05	.05	.0135	.0079	4:00	.06	.0144	.1092
:25	.01	.0018	.0012	12:00	T	.0008		:10	.05	.0135	.0087	5:00	.05	.0135	.1232
:30	.01	.0018	.0014	p. m.				:15	.05	.0135	.0087	6:00	.04	.0102	.1350
:35	.01	.0015	.0015	1:00	.01	.0018	.0035	:20	.05	.0118	.0142	7:00	.04	.0095	.1448
:38	.01	.0026	.0016	2:00	.01	.0022	.0055	:25	.05	.0118	.0172	8:00	.03	.0080	.1536
:40	.01	.0015	.0017	3:00	.01	.0026	.0079	:30	.04	.0110	.0229	9:00	.03	.0072	.1612
:45	T	.0011	.0018	4:00	.01	.0036	.0110	:35	.04	.0102	.0282	10:00	.02	.0059	.1678
11:00	T	.0011	.0021	5:00	.01	.0031	.0144	:40	.04	.0095	.0331	11:00	.02	.0047	.1731
12:00	.01	.0015	.0034	6:00	.01	.0031	.0175	:45	.03	.0087	.0377	12:00	.02	.0041	.1775
p. m.				7:00	.01	.0018	.0199	:50	.03	.0072	.0417	Mar. 17			
1:00	.01	.0026	.0054	8:00	T	.0011	.0213	1:00	.02	.0047	.0618	a. m.			
2:00	.01	.0036	.0085	9:00	T	.0005	.0221	:30	.02	.0047	.0642	1:00	.01	.0031	.1811
3:00	.02	.0047	.0127	10:00	T	T	.0223	:35	.02	.0047	.0646	2:00	.01	.0026	.1839
4:00	.02	.0047	.0174	11:00	0	0	.0223	:40	.02	.0053	.0650	3:00	.01	.0018	.1861
5:00	.02	.0041	.0218	Mar. 8 <sup>1</sup>				:45	.02	.0059	.0655	4:00	T	.0011	.1875
6:00	.01	.0036	.0256	a. m.				:50	.03	.0073	.0661	5:00	T	.0005	.1883
7:00	.01	.0026	.0287	9:36	0	0	0	:55	.03	.0088	.0668	6:00	T	T	.1885
8:00	.01	.0015	.0307	:37	T	.0011		1:00	.04	.0103	.0676	7:00	0	0	.1885
9:00	T	.0005	.0317	:38	.01	.0026		:05	.05	.0118	.0685	Mar. 17 <sup>1</sup>			
10:00	T	T	.0319	:39	.01	.0026		:10	.05	.0127	.0695	a. m.			
11:00	0	0	.0319	:40	.01	.0026		:15	.05	.0135	.0706	10:59	0	0	0
Mar. 5 <sup>1</sup>				:50	.01	.0022	.0004	12:00	.04	.0102	.0799	:11	T	T	
a. m.				10:00	T	.0011	.0007	Mar. 16				:12	T	T	
3:07	0	0	0	11:00	T	.0008	.0017	a. m.				:13	T	T	
:08	.03	.0087	.0001	12:00	T	.0008	.0025	12:15	.03	.0087	.0823	:14	T	T	
:09	.05	.0127	.0003	p. m.				:30	.03	.0072	.0843	:15	T	T	
:10	.05	.0127	.0005	1:00	T	.0011	.0035	:45	.02	.0059	.0859	:20	T	T	
:15	.05	.0118	.0015	2:00	.01	.0015	.0048	1:00	.02	.0047	.0872	:30	.01	.0015	.0001
:20	.04	.0102	.0024	3:00	.01	.0022	.0066	:15	.01	.0036	.0882	:40	.01	.0018	.0006
:30	.04	.0095	.0040	4:00	.01	.0031	.0092	:30	.01	.0026	.0890	11:00	.01	.0018	.0012
:40	.03	.0087	.0055	6:00	.01	.0031	.0154	:45	.01	.0018	.0896	:10	.01	.0018	.0015
:45	.04	.0102	.0063	7:00	.01	.0018	.0178	2:00	T	.0005	.0899	:20	.01	.0022	.0018
:50	.04	.0102	.0071	8:00	T	.0011	.0192	:15	0	0		:40	.01	.0022	.0026
								:30	0	0		:50	.01	.0026	.0030
												12:00	.01	.0031	.0035

See footnotes at end of table, p. 66.



TABLE 30.—Run-off from watershed 3-H, March 27, 1939 to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1940				1940				1940				1940			
Mar. 17				May 17				May 17				June 8			
p. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches
1:00-----	0.01	0.0036	0.0069	3:10-----	T	0.0003		10:00-----	T	0.0003	0.0344	8:57-----	0.06	0.0158	0.0313
2:00-----	.01	.0026	.0100	:15-----	T	.0003		11:00-----	T		.0346	:58-----	.05	.0132	.0315
3:00-----	.01	.0018	.0122	:20-----	T	.0006		12:00-----	0	0	.0346	:59-----	.05	.0116	.0317
4:00-----	T	.0011	.0136	:25-----	T	.0008	0.0084					9:00-----	.04	.0101	.0319
5:00-----	T	T	.0142	:30-----	T	.0011	.0085	June 8 <sup>15</sup>				:01-----	.04	.0093	.0321
:30-----	0	0	.0142	:35-----	0.01	.0019	.0086	p. m.				:02-----	.03	.0078	.0322
May 17 <sup>14</sup>				:40-----	.01	.0032	.0088	8:12-----	0	0	0	:03-----	.03	.0064	.0323
a. m.				:45-----	.02	.0041	.0091	:13-----	.01	.0020		:04-----	.02	.0058	.0324
2:01-----	0	0	0	:50-----	.02	.0059	.0095	:14-----	.01	.0017		:05-----	.02	.0052	.0325
:02-----	.01	.0013		:55-----	.04	.0088	.0101	:15-----	.01	.0015		:10-----	.01	.0031	.0329
:03-----	T	.0010		4:00-----	.05	.0127	.0110	:16-----	T	.0011		:15-----	.01	.0022	.0331
:04-----	T	.0008		:05-----	.05	.0118	.0120	:17-----	T	.0008		:20-----	.01	.0015	.0333
:05-----	.01	.0018		:10-----	.04	.0102	.0129	:18-----	T	.0005		:25-----	T	.0011	.0334
:08-----	.01	.0018		:15-----	.04	.0094	.0137	:19-----	T	.0012		:30-----	.01	.0024	.0336
:09-----	.01	.0020		:20-----	.03	.0087	.0145	:20-----	.01	.0024		:31-----	.01	.0028	
:10-----	.01	.0031		:25-----	.03	.0087	.0152	:21-----	.01	.0027		:32-----	.01	.0033	
:11-----	.02	.0055	.0001	:30-----	.04	.0095	.0160	:22-----	.01	.0031		:33-----	.02	.0051	.0337
:12-----	.02	.0059	.0002	:35-----	.04	.0111	.0169	:23-----	.01	.0026		:34-----	.03	.0083	.0338
:13-----	.02	.0053	.0003	:40-----	.06	.0155	.0180	:24-----	.01	.0028		:35-----	.04	.0097	.0340
:14-----	.02	.0046	.0004	:45-----	.08	.0204	.0195	:25-----	.01	.0031		:36-----	.04	.0103	.0342
:15-----	.02	.0043	.0005	:50-----	.09	.0214	.0212	:26-----	.01	.0036	.0001	:37-----	.05	.0119	.0344
:16-----	.02	.0044	.0006	:55-----	.07	.0181	.0228	:29-----	.01	.0036	.0004	:38-----	.05	.0124	.0346
:17-----	.04	.0094	.0007	5:00-----	.06	.0161	.0242	:30-----	.02	.0038	.0005	:39-----	.05	.0128	.0348
:18-----	.15	.0382	.0011	:05-----	.06	.0143	.0255	:31-----	.02	.0061	.0006	:40-----	.05	.0136	.0350
:19-----	.25	.0625	.0019	:10-----	.04	.0094	.0265	:32-----	.11	.0276	.0009	:41-----	.06	.0141	.0352
:20-----	.21	.0532	.0029	:15-----	.03	.0072	.0272	:33-----	.24	.0590	.0016	:42-----	.06	.0144	.0354
:21-----	.16	.0399	.0037	:20-----	.03	.0072	.0278	:34-----	.27	.0578	.0027	:43-----	.06	.0141	.0356
:22-----	.11	.0269	.0043	:25-----	.03	.0065	.0284	:35-----	.28	.0703	.0039	:44-----	.05	.0134	.0358
:23-----	.10	.0242	.0047	:30-----	.02	.0046	.0289	:36-----	.27	.0668	.0050	:45-----	.05	.0125	.0360
:24-----	.08	.0200	.0051	:40-----	.01	.0018	.0294	:37-----	.33	.0836	.0063	:46-----	.05	.0120	.0362
:25-----	.08	.0190	.0054	:50-----	T	.0011	.0296	:38-----	.61	.154	.0083	:47-----	.05	.0118	.0364
:26-----	.07	.0180	.0057	6:00-----	T	.0005	.0297	:39-----	.62	.156	.0109	:48-----	.05	.0113	.0366
:27-----	.07	.0170	.0060	:10-----	T	.0002	.0298	:40-----	.56	.140	.0134	:49-----	.04	.0101	.0368
:28-----	.06	.0161	.0063	:20-----	T	T		:41-----	.49	.123	.0156	:50-----	.04	.0093	.0370
:29-----	.06	.0143	.0066	:30-----	T	T		:42-----	.46	.113	.0176	:52-----	.03	.0082	.0373
:30-----	.05	.0133	.0068	:40-----	T	.0006		:43-----	.41	.103	.0194	:53-----	.03	.0068	.0374
:31-----	.04	.0107	.0070	:50-----	T	.0005	.0299	:44-----	.37	.0934	.0210	:54-----	.02	.0057	.0375
:32-----	.04	.0093	.0072	7:00-----	T	.0008	.0300	:45-----	.30	.0756	.0224	:55-----	.02	.0053	.0376
:33-----	.03	.0079	.0073	:10-----	T	.0008	.0301	:46-----	.29	.0723	.0236	:56-----	.02	.0046	.0377
:34-----	.03	.0071	.0074	:20-----	T	.0011	.0303	:47-----	.30	.0743	.0248	:57-----	.02	.0043	.0378
:35-----	.03	.0064	.0075	:25-----	.01	.0019	.0304	:48-----	.28	.0710	.0260	:58-----	.02	.0040	.0379
:40-----	.01	.0028	.0079	:30-----	.01	.0037	.0306	:49-----	.25	.0620	.0271	:59-----	.01	.0037	.0380
:45-----	.01	.0022	.0081	:35-----	.02	.0059	.0310	:50-----	.18	.0459	.0280	10:00-----	.01	.0035	.0381
:50-----	T	.0011	.0082	:40-----	.02	.0046	.0314	:51-----	.14	.0359	.0287	:05-----	.01	.0026	.0383
:55-----	T	.0005	.0083	:45-----	.01	.0031	.0317	:52-----	.13	.0316	.0293	:10-----	.01	.0018	.0385
3:00-----	T	.0005		:50-----	.01	.0026	.0319	:53-----	.12	.0291	.0298	:15-----	T	.0011	.0386
:05-----	T	.0002		:55-----	.01	.0022	.0321	:54-----	.10	.0254	.0303	:30-----	T	.0005	.0388
				8:00-----	.01	.0018	.0323	:55-----	.09	.0220	.0307	11:00-----	T	T	.0389
				9:00-----	T	.0011	.0337	:56-----	.07	.0187	.0310	:30-----	0	0	.0389

<sup>1</sup> Run-off from melting snow.<sup>2</sup> Total rainfall for storm of Apr. 4, 1.36 inches. Soil wet before rain. Winter wheat 2 inches high.<sup>3</sup> Total rainfall for storm of May 20, 0.81 inch. Soil dry before rain. Corn and wheat in strips. Corn planted with lister May 15, rows 42 inches apart. Wheat 10 inches high, thin.<sup>4</sup> Total rainfall for storm of May 22, 0.38 inch. Soil moist and firm before rain. Wheat 10 inches high, thin.<sup>5</sup> Total rainfall for storm of June 12, 0.37 inch. Soil moist and firm before rain. Corn 9 inches high. Wheat 14 inches high, very thin.<sup>6</sup> Total rainfall for storm of June 15, 0.66 inch. Soil moist from rain of June 12. Corn 10 inches high. Wheat thin, 14 inches high.<sup>7</sup> Total rainfall for storm of June 20, 1.32 inches. Soil moist before rain. Corn cultivated June 17, 10 inches high. Contour furrows broke, many small gullies formed. Wheat thin, 14 inches high.<sup>8</sup> Total rainfall for storm of June 21, 0.27 inch. Soil wet and plastic before rain. Gullies formed on previous day concentrated run-off.<sup>9</sup> Total rainfall for storm of June 25, 0.67 inch. Soil moist and firm before rain. Corn 20 inches high. Wheat 16 inches high. Several small gullies formed.<sup>10</sup> Total rainfall for storm of Aug. 1, 0.47 inch. Soil loose and dry before rain. Corn 45 inches high, badly damaged by drought and grasshoppers. Wheat harvested, stubble remained.<sup>11</sup> Total rainfall for storm of Aug. 7, 0.68 inch. Soil dry before rain. Corn 45 inches high, very poor. Wheat stubble.<sup>12</sup> Total rainfall for storm of Aug. 11, 0.86 inch. Soil dry before rain. Corn 45 inches high. Wheat stubble. Several small gullies formed.<sup>13</sup> Total rainfall for storm of Mar. 1-2, 0.40 inch. Soil dry before rain. Corn stalks and oat stubble remained from strip cropping of 1939. Stubble ground well protected by Russian thistles.<sup>14</sup> Total rainfall for storm of May 17, 1.24 inches. Soil moist before rain. Strips of corn just planted with lister. Strips of oats were 7 inches high. Russian thistles 4 inches high in oats.<sup>15</sup> Total rainfall for storm of June 8, 1.14 inches. Soil dry before rain. Corn 4 inches high, had been cultivated June 7. Oats 14 inches high.



TABLE 31.—Run-off from watershed 4-H, April 20, 1939, to December 31, 1940

LOCATION: Latitude 40°15'56", longitude 98°22'24".

## PHYSICAL CHARACTERISTICS:

Drainage area.—3.84 acres.

Length of principal watercourse.—510 feet.

Topography.—Undulating, well drained.

Slope.—Average slope is 6.2 percent. 1 percent of the watershed has a slope of less than 2 percent; 41 percent, 2 to 5 percent; 39 percent, 5 to 8 percent; 15 percent, 8 to 12 percent; and 4 percent has a slope of 12 percent or more.

Erosion condition.—The watershed has occasional small gullies that are filled up by farm operations but appear again during rains that produce run-off. The area has lost 25 to 50 percent of the topsoil.

Soil.—Hastings silt loam, 79 percent; Holdrege silty clay loam, 21 percent. The Holdrege silty clay loam occurs in the lower and steeper areas.

## LAND USE AND VEGETAL COVER:

Land use distribution.—Cultivated land, 100 percent.

Vegetal cover and soil condition.—This watershed was planted to wheat in the fall of 1938. The wheat was killed by disking and corn was planted on contour in 1939. The crop for 1940 was corn planted in straight rows.

Cultural operations for 1939 were as follows:

Apr. 24, single-disked on contour to kill wheat.

May 15, corn planted on the contour with lister.

June 3, corn cultivated with go-dig cultivator.

June 17, corn cultivated with go-dig cultivator.

June 29, corn cultivated with shovel cultivator.

The corn was not harvested. The stalks matured at a height of about 42 inches and remained standing in the field for the rest of the year. Damage from drought and grasshoppers was severe.

Cultural operations for 1940 were as follows:

April 15, single-disked in straight lines east and west.

May 14, corn planted with lister in straight rows 42 inches apart.

June 7, corn cultivated with go-dig cultivator.

June 20, corn cultivated with go-dig cultivator.

The crop was a complete failure, both for forage and grain.

A sample yielded only 831 pounds of forage an acre and 19 pounds of grain an acre. The stalks at maturity were 4 feet high. They were left standing in the field.

## MEASUREMENTS:

Precipitation.—Rainfall was measured at recording rain gage B36R (fig. 2). Snowfall was measured by weighing and recording rain and snow gages and by cooperative observers' measurements. Snow inventory on the watershed was obtained by inspection.

Run-off.—Run-off was measured by an H flume 3 feet deep.

Changes in instrumentation during period.—None.

## SUMMARY OF RECORDS:

Run-off.—Annual run-off amount 1940, 0.780 inch. Maximum rate of run-off 1939, 1.78 inches per hour, August 11; maximum rate 1940, 1.55 inches per hour, June 8.

Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off
1939			1939			1939			1939		
June 15 <sup>1</sup>			June 15			June 20			June 20		
a. m.	Second-foot	Inches per hour	a. m.	Second-foot	Inches per hour	p. m.	Second-foot	Inches per hour	p. m.	Second-foot	Inches per hour
3:26	0	0	4:23	0.08	0.0214	1:39	2.56	0.661	4:28	1.58	0.408
:27	.35	.0911	:24	.05	.0126	:40	2.41	.622	:29	1.70	.439
:28	.72	.186	:25	.06	.0142	:41	2.16	.558	:30	1.65	.426
:29	1.67	.431	:26	.05	.0129	:42	1.74	.449	:31	1.65	.426
:30	2.18	.562	:27	.04	.0115	:43	1.43	.369	:32	1.56	.403
:31	2.69	.694	:28	.04	.0101	:44	1.23	.318	:33	1.52	.393
:32	3.11	.802	:29	.03	.0088	:45	.93	.240	:34	1.46	.377
:33	2.86	.739	:30	.03	.0076	:46	.68	.175	:35	1.39	.359
:34	2.48	.640	:31	.03	.0065	:47	.57	.148	:36	1.35	.349
:35	2.34	.604	:32	.02	.0055	:48	.52	.134	:37	1.25	.323
:36	2.14	.553	:33	.02	.0045	:49	.48	.125	:38	1.15	.297
:37	1.90	.492	:34	.01	.0033	:50	.43	.112	:39	1.10	.284
:38	1.78	.459	:35	.01	.0026	:51	.33	.0844	:40	1.03	.266
:39	1.48	.384	:36	.01	.0023	:52	.27	.0700	:41	.93	.239
:40	1.26	.326	:37	.01	.0018	:53	.25	.0643	:42	.84	.217
:41	1.08	.279	:38	T	.0013	:54	.22	.0573	:43	.77	.198
:42	1.02	.263	:39	T	.0008	:55	.20	.0504	:44	.72	.185
:43	1.12	.289	:40	T	.0004	:56	.18	.0457	:45	.64	.165
:44	.45	.116	:41	0	0	:57	.16	.0405	:46	.60	.154
:45	.42	.109				:58	.14	.0354	:47	.54	.138
:46	.29	.0756				:59	.12	.0310	:48	.43	.112
:47	.20	.0529	June 20 <sup>2</sup>			2:00	.10	.0261	:49	.42	.110
:48	.14	.0356	p. m.			:01	.08	.0208	:50	.36	.0927
:49	.11	.0286	1:15	0	0	:02	.07	.0170	:51	.31	.0798
:50	.08	.0200	:16	.20	.0524	:03	.06	.0148	:52	.28	.0720
:51	.08	.0194	:17	.74	.192	:04	.05	.0121	:53	.25	.0643
:52	.06	.0151	:18	1.99	.514	:05	.04	.0102	:54	.22	.0581
:53	.05	.0140	:19	1.65	.426	:06	.03	.0088	:55	.21	.0548
:54	.05	.0122	:20	1.45	.374	:07	.03	.0073	:56	.19	.0491
:55	.04	.0104	:21	1.36	.351	:08	.02	.0059	:57	.17	.0436
:56	.03	.0088	:22	1.41	.364	:09	.02	.0048	:58	.14	.0369
:57	.03	.0081	:23	1.65	.426	:10	.01	.0035	:59	.12	.0320
:58	.03	.0081	:24	2.36	.610	:11	.01	.0027	5:00	.12	.0297
:59	.02	.0059	:25	4.10	1.06	:12	.01	.0020	:01	.10	.0253
4:00	.02	.0048	:26	5.21	1.34	:13	.01	.0013	:02	.08	.0217
:01	.01	.0033	:27	4.99	1.29	:14	T	.0007	:03	.07	.0183
:02	.01	.0028	:28	4.17	1.08	:15	T	.0001	:04	.06	.0155
:03	.01	.0030	:29	3.70	.956	:16	0	0	:05	.05	.0140
:04	.01	.0014	:30	3.20	.826				:06	.05	.0122
:05	T	.0006	:31	2.81	.726				:07	.04	.0101
:06	0	0	:32	2.52	.651				:08	.03	.0077
:18	0	0	:33	2.25	.581	4:22	0	0	:09	.02	.0060
:19	.17	.0435	:34	2.01	.519	:23	.10	.0263	:10	.02	.0044
:20	.19	.0498	:35	1.84	.475	:24	.20	.0519	:11	.01	.0033
:21	.19	.0498	:36	1.65	.426	:25	.34	.0878	:12	.01	.0022
:22	.13	.0343	:37	1.83	.473	:26	.73	.190	:13	.01	.0014
			:38	2.45	.633	:27	1.12	.289			

See footnotes at end of table, p. 70.



TABLE 31.—Run-off from watershed 4-H, April 20, 1939, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off
1939			1939			1939			1940		
June 20			July 1 <sup>5</sup>			Aug. 7			Feb. 14		
p. m.	Second-foot	Inches per hour	a. m.	Second-foot	Inches per hour	p. m.	Second-foot	Inches per hour	p. m.	Second-foot	Inches per hour
5:14	T	0.0006	4:47	0	0	5:53	0.03	0.0080	5:10	T	0.0009
15	T	0.0001	4:48	.10	.0251	5:54	.03	.0074	15	T	.0009
16	0	0	4:49	.36	.0945	5:55	.03	.0069	6:00	T	.0009
			4:50	.68	.175	5:56	.02	.0064	15	T	.0009
June 21 <sup>3</sup>			4:51	1.06	.273	5:57	.02	.0058	30	T	.0005
p. m.			4:52	1.08	.279	5:58	.02	.0053	45	T	.0003
7:47	0	0	4:53	1.12	.289	5:59	.02	.0048	7:00	0	0
48	.02	.0054	4:54	.80	.207	6:00	.02	.0042			
49	.08	.0209	4:55	.61	.156	6:01	.01	.0037	Feb. 15 <sup>9</sup>		
50	.23	.0604	4:56	.55	.143	6:02	.01	.0033	p. m.		
51	.65	.169	4:57	.62	.160	6:03	.01	.0029	3:06	0	0
52	1.17	.302	4:58	.52	.133	6:04	.01	.0026	7	T	.0005
53	1.22	.315	4:59	.44	.114	6:05	.01	.0022	10	T	.0009
54	1.10	.285	5:00	.38	.0975	6:06	.01	.0018	20	T	.0009
55	.97	.250	5:01	.34	.0864	6:07	.01	.0015	30	T	.0009
56	.63	.163	5:02	.29	.0754	6:08	T	.0012	40	T	.0009
57	.48	.125	5:03	.25	.0654	6:09	T	.0009	5:00	T	.0005
58	.49	.126	5:04	.22	.0576	6:10	T	.0006	6:00	T	.0005
59	.47	.122	5:05	.21	.0551	6:11	T	.0004	7:00	T	.0005
8:00	.44	.115	5:06	.19	.0500	6:12	T	.0002	8:00	T	.0005
01	.38	.0977	5:07	.14	.0356	6:13	0	0	9:00	0	0
02	.32	.0836	5:08	.07	.0189				Feb. 27 <sup>9</sup>		
03	.28	.0731	5:09	.06	.0155	9:57	0	0	p. m.		
04	.25	.0639	5:10	.05	.0132	58	5.16	1.33	2:28	0	0
05	.22	.0577	5:11	.05	.0122	59	6.31	1.63	29	T	.0005
06	.20	.0527	5:12	.03	.0087	10:00	6.25	1.61	30	T	.0009
07	.18	.0459	5:13	.02	.0042	01	6.53	1.69	30	T	.0009
08	.14	.0373	5:14	.02	.0039	02	6.91	1.78	30	T	.0009
09	.15	.0379	5:15	.01	.0015	03	5.79	1.50	30	T	.0009
10	.14	.0357	5:16	.01	.0014	04	5.79	1.50	30	T	.0005
11	.12	.0305		0	0	05	4.62	1.19	6:00	T	.0003
12	.10	.0268	Aug. 1 <sup>6</sup>			06	3.95	1.02	8:00	T	.0005
13	.09	.0237	p. m.			07	2.76	.713	9:00	0	0
14	.08	.0206	7:54	0	0	08	1.26	.325			
15	.06	.0165	55	.07	.0193	09	1.41	.364	Feb. 29 <sup>9</sup>		
16	.04	.0105	56	.10	.0252	10	1.32	.341	p. m.		
17	.03	.0078	57	.17	.0429	11	1.29	.332	12:33	0	0
18	.03	.0085	58	.22	.0576	12	1.17	.302	34	T	.0005
19	.03	.0073	59	.26	.0660	13	1.12	.288	35	T	.0009
20	.02	.0059	8:00	.28	.0723	14	.96	.249	36	T	.0009
21	.01	.0033	01	.21	.0553	15	.80	.206	37	T	.0009
22	.01	.0022	02	.17	.0447	16	.67	.172	38	T	.0009
23	.01	.0026	03	.14	.0351	17	.50	.129	39	T	.0012
24	T	.0011	04	.10	.0266	18	.39	.100	40	T	.0012
25	0	0	05	.07	.0191	19	.29	.0755	41	.01	.0019
June 25 <sup>4</sup>			06	.05	.0126	20	.26	.0671	42	.01	.0019
a. m.			07	.03	.0087	21	.23	.0590	43	.01	.0023
1:24	0	0	08	.03	.0088	22	.17	.0429	44	.01	.0023
25	.29	.0761	09	.02	.0051	23	.12	.0314	45	.01	.0023
26	.71	.184	10	T	T	24	.10	.0249	46	.01	.0023
27	1.03	.266	11	.01	.0014	25	.08	.0217	47	.01	.0023
28	1.05	.271	12	T	.0010	26	.08	.0203	48	.01	.0023
29	.85	.220	13	T	.0013	27	.07	.0174	49	.01	.0023
30	.74	.190	14	T	.0010	28	.05	.0132	50	.01	.0023
31	.61	.157	15	T	.0005	29	.05	.0122	51	.01	.0023
32	.51	.132	16	0	0	30	.04	.0104	52	.01	.0023
33	.50	.128				31	.03	.0088	53	.01	.0023
34	.46	.119	Aug. 7 <sup>7</sup>			32	.03	.0075	54	.01	.0023
35	.43	.111	p. m.			33	.03	.0068	55	.01	.0023
36	.42	.108	4:58	0	0	34	.02	.0060	56	.01	.0023
37	.40	.104	59	.01	.0037	35	.02	.0054	57	.01	.0023
38	.39	.100	5:00	.01	.0037	36	.02	.0050	58	.01	.0023
39	.37	.0964	01	.01	.0014	37	.02	.0045	59	.01	.0023
40	.35	.0910	02	T	.0010	38	.02	.0039	2:00	.02	.0042
41	.30	.0789	03	T	.0013	39	.01	.0035	3:00	.02	.0042
42	.27	.0690	04	T	.0010	40	.01	.0031	4:00	.02	.0042
43	.23	.0599	05	T	.0008	41	.01	.0028	5:00	.01	.0037
44	.20	.0510	06	T	.0008	42	.01	.0024	6:00	.01	.0037
45	.17	.0435	07	T	.0006	43	.01	.0020	7:00	.01	.0037
46	.16	.0401	08	T	.0005	44	.01	.0017	8:00	.01	.0037
47	.14	.0362	09	T	.0004	45	.01	.0014	9:00	.01	.0037
48	.13	.0325	10	T	.0002	46	T	.0011	10:00	.01	.0037
49	.12	.0300	11	0	0	47	T	.0008	11:00	.01	.0037
50	.10	.0272	12	0	0	48	T	.0005			
51	.09	.0237	13	.09	.0245	49	T	.0002	Mar. 4 <sup>9</sup>		
52	.08	.0206	14	.16	.0404	50	T	.0002	p. m.		
53	.07	.0173	15	.16	.0426	51	T	.0002	12:37	0	0
54	.05	.0142	16	.19	.0502	52	T	.0001	38	T	.0005
55	.05	.0118	17	.17	.0442	53	0	0	39	T	.0007
56	.04	.0104	18	.19	.0498				40	T	.0009
57	.03	.0088	19	.17	.0442				41	T	.0012
58	.03	.0072	20	.14	.0368				42	T	.0012
59	.02	.0059	21	.11	.0294				43	T	.0012
2:00	.02	.0049	22	.07	.0191				44	T	.0012
01	.02	.0042	23	.07	.0172				45	.01	.0013
02	.01	.0033	24	.06	.0151				46	.01	.0015
03	.01	.0025	25	.04	.0113				47	.01	.0015
04	.01	.0014	26	.04	.0104				48	.01	.0015
05	T	.0006	27	.03	.0088				49	.01	.0015
06	0	0	28	.03	.0079				50	.01	.0015
									51	.01	.0015
									52	.01	.0015
									53	.01	.0015
									54	.01	.0015
									55	.01	.0015
									56	.01	.0015
									57	.01	.0015
									58	.01	.0015
									59	.01	.0015
									6:00	.01	.0015
									7:00	.01	.0015
									8:00	.01	.0015
									9:00	.01	.0015
									10:00	.01	.0015
									11:00	.01	.0015
									12:00	.01	.0015

See footnotes at end of table, p 70.



TABLE 31.—Run-off from watershed 4-H, April 20, 1939, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1940				1940				1940				1940			
Mar. 5				Mar. 15 <sup>9</sup>				Mar. 16				May 17			
<i>p. m.</i>				<i>p. m.</i>				<i>p. m.</i>				<i>a. m.</i>			
1:00	0.01	0.0037	0.0065	1:17	0	0	0	7:00	0.01	0.0032	0.1482	8:00	0.02	0.0051	0.0565
2:00	0.01	0.0037	0.0102	1:18	T	0.0008		8:00	0.01	0.0027	0.1512	8:05	0.02	0.0048	0.0569
3:00	0.02	0.0042	0.0142	1:25	T	0.0008	0.0001	9:00	0.01	0.0015	0.1533	10:00	0.02	0.0045	0.0573
4:00	0.02	0.0060	0.0193	1:50	T	0.0008	0.0006	10:00	T	0.0005	0.1543	10:15	0.02	0.0042	0.0577
5:00	0.02	0.0060	0.0253	1:52	T	0.0008		11:00	T	T	0.1545	10:30	0.02	0.0042	0.0589
6:00	0.02	0.0048	0.0307	1:53	T	0.0010		12:00	0	0	0.1545	9:00	0.01	0.0037	0.0609
7:00	0.01	0.0037	0.0349	1:54	T	0.0012						9:30	0.01	0.0032	0.0626
8:00	0.01	0.0019	0.0377	1:55	0.01	0.0027		May 17 <sup>10</sup>				10:00	0.01	0.0027	0.0641
9:00	T	0.0012	0.0393	2:00	0.02	0.0048	0.0009	<i>a. m.</i>				10:30	T	0.0012	0.0651
10:00	T	0.0005	0.0401	2:05	0.02	0.0051	0.0013	2:09	0	0	0	11:00	T	T	0.0654
11:00	T	T	0.0403	2:10	0.02	0.0054	0.0017	10:00	0.01	0.0019		12:00	0	0	0.0654
12:00	0	0	0.0403	2:15	0.02	0.0060	0.0022	10:10	0.01	0.0019		June 8 <sup>11</sup>			
Mar. 6 <sup>9</sup>				2:20	0.02	0.0063	0.0027	10:15	0.01	0.0037		<i>p. m.</i>			
<i>a. m.</i>				2:25	0.03	0.0067	0.0032	10:20	0.02	0.0042	0.0001	8:11	0	0	0
11:02	0	0	0	2:30	0.03	0.0067	0.0038	10:25	0.02	0.0039	0.0002	8:12	0.02	0.0040	
11:03	T	T		2:35	0.03	0.0074	0.0044	10:30	0.02	0.0042	0.0003	8:13	0.02	0.0042	
11:04	T	0.0005		2:40	0.04	0.0090	0.0051	10:35	0.01	0.0037	0.0004	8:14	0.02	0.0039	
11:05	T	0.0009		2:45	0.05	0.0105	0.0059	10:40	0.01	0.0035	0.0010	8:15	0.01	0.0037	
11:10	T	0.0012	0.0001	2:50	0.06	0.0139	0.0069	10:45	0.01	0.0027	0.0013	8:16	0.01	0.0030	
11:20	T	0.0012	0.0005	2:55	0.06	0.0148	0.0081	10:50	0.01	0.0023	0.0017	8:17	0.01	0.0027	
12:00	T	0.0009	0.0010	3:00	0.07	0.0177	0.0095	10:55	0.01	0.0020	0.0019	8:18	0.01	0.0027	
<i>p. m.</i>				3:05	0.07	0.0187	0.0110	11:00	0.01	0.0019		8:19	0.01	0.0034	
1:00	T	0.0012	0.0020	3:10	0.07	0.0177	0.0118	11:05	0.02	0.0042		8:20	0.02	0.0047	0.0001
2:00	0.01	0.0019	0.0036	3:15	0.07	0.0177	0.0121	11:10	0.03	0.0067	0.0020	8:21	0.03	0.0065	0.0002
3:00	0.01	0.0019	0.0055	3:20	0.06	0.0158	0.0125	11:15	0.02	0.0067	0.0021	8:22	0.05	0.0138	0.0004
4:00	0.01	0.0015	0.0072	3:25	0.06	0.0158	0.0125	11:20	0.02	0.0067	0.0021	8:23	0.47	1.21	0.0015
5:00	T	0.0003	0.0081	3:30	0.07	0.0177	0.0129	11:25	0.01	0.0032	0.0028	8:24	2.08	5.37	0.0070
6:00	0	0	0.0083	3:35	0.08	0.0209	0.0145	11:30	0.01	0.0027	0.0030	8:25	2.90	7.49	0.0177
Mar. 7 <sup>9</sup>				3:40	0.08	0.0209	0.0145	11:35	0.01	0.0025	0.0032	8:26	6.02	1.55	0.0369
<i>a. m.</i>				3:45	0.08	0.0198	0.0145	11:40	0.01	0.0023	0.0034	8:27	5.23	1.35	0.0611
1:35	0	0	0	3:50	0.07	0.0187	0.0145	11:45	0.01	0.0023	0.0034	8:28	4.09	1.06	0.0811
1:40	T			3:55	0.08	0.0198	0.0145	11:50	0.01	0.0026	0.0040	8:29	3.31	0.855	0.0971
2:00	T	T		4:00	0.08	0.0209	0.0145	11:55	0.01	0.0027	0.0044	8:30	2.95	0.762	0.1106
<i>p. m.</i>				4:05	0.06	0.0167	0.0145	12:00	0.02	0.0060	0.0051	8:31	2.73	0.705	0.1228
1:00	T	T		4:10	0.06	0.0158	0.0145	12:05	0.03	0.0082	0.0057	8:32	2.53	0.653	0.1341
2:00	T	0.0003	0.0002	4:15	0.05	0.0130	0.0119	12:10	0.04	0.0100	0.0065	8:33	2.42	0.625	0.1447
3:00	T	0.0005	0.0006	4:20	0.05	0.0136	0.0119	12:15	0.04	0.0105	0.0067	8:34	2.27	0.586	0.1548
4:00	T	0.0005	0.0026	4:25	0.04	0.0113	0.0113	12:20	0.05	0.0139	0.0069	8:35	2.21	0.571	0.1644
5:00	T	0.0003	0.0030	4:30	0.04	0.0105	0.0113	12:25	0.05	0.0122	0.0071	8:36	2.18	0.563	0.1738
6:00	T	0.0032	0.0032	4:35	0.03	0.0082	0.0113	12:30	0.06	0.0167	0.0073	8:37	2.07	0.534	0.1829
7:00	T			4:40	0.03	0.0074	0.0113	12:35	0.07	0.0187	0.0076	8:38	1.97	0.509	0.1916
8:00	T	T		4:45	0.03	0.0074	0.0113	12:40	0.07	0.0187	0.0079	8:39	1.89	0.488	0.1999
9:00	T			4:50	0.03	0.0074	0.0113	12:45	0.11	0.0292	0.0083	8:40	1.88	0.485	0.2080
10:00	T			4:55	0.03	0.0067	0.0113	12:50	0.14	0.0361	0.0088	8:41	1.87	0.483	0.2161
11:00	0	0	0.0032	5:00	0.02	0.0060	0.0113	12:55	0.13	0.0330	0.0094	8:42	1.85	0.478	0.2241
Mar. 8 <sup>9</sup>				5:05	0.02	0.0060	0.0113	1:00	0.12	0.0305	0.0099	8:43	1.78	0.460	0.2321
<i>a. m.</i>				5:10	0.02	0.0054	0.0113	1:05	0.09	0.0231	0.0121	8:44	1.32	0.341	0.2399
10:50	0	0	0	5:15	0.02	0.0042	0.0113	1:10	0.09	0.0242	0.0141	8:45	0.95	0.245	0.2466
10:55	T	0.0003	0.0005	5:20	0.02	0.0039	0.0113	1:15	0.09	0.0231	0.0161	8:46	0.70	0.181	0.2515
11:00	T	0.0005	0.0005	5:25	0.01	0.0037	0.0113	1:20	0.08	0.0198	0.0179	8:47	0.66	0.169	0.2551
12:00	T			5:30	0.01	0.0037	0.0113	1:25	0.08	0.0202	0.0196	8:48	0.43	0.111	0.2580
<i>p. m.</i>				5:35	0.01	0.0027	0.0113	1:30	0.07	0.0183	0.0212	8:49	0.36	0.0942	0.2603
1:00	T	0.0007	0.0011	5:40	0.01	0.0019	0.0113	1:35	0.07	0.0187	0.0227	8:50	0.31	0.0800	0.2620
2:00	T	0.0009	0.0019	5:45	0.01	0.0012	0.0113	1:40	0.09	0.0231	0.0244	8:51	0.32	0.0816	0.2635
3:00	T	0.0012	0.0029	5:50	0.01	0.0009	0.0113	1:45	0.09	0.0231	0.0244	8:52	0.18	0.0478	0.2648
4:00	0.01	0.0019	0.0045	5:55	0.01	0.0003	0.0113	1:50	0.12	0.0318	0.0267	8:53	0.16	0.0421	0.2659
5:00	0.01	0.0023	0.0066	6:00	0.01	0.0003	0.0113	1:55	0.16	0.0403	0.0297	8:54	0.15	0.0387	0.2667
6:00	0.01	0.0019	0.0087	6:05	0.01	0.0003	0.0113	2:00	0.12	0.0318	0.0327	8:55	0.17	0.0442	0.2674
7:00	0.01	0.0015	0.0104	6:10	0.01	0.0003	0.0113	2:05	0.11	0.0292	0.0352	8:56	0.18	0.0465	0.2681
8:00	T	0.0012	0.0118	6:15	0.01	0.0003	0.0113	2:10	0.07	0.0177	0.0391	8:57	0.16	0.0423	0.2689
9:00	T	0.0005	0.0126	6:20	0.01	0.0003	0.0113	2:15	0.05	0.0139	0.0404	8:58	0.15	0.0361	0.2696
10:00	T		0.0128	6:25	0.01	0.0003	0.0113	2:20	0.06	0.0158	0.0416	8:59	0.12	0.0323	0.2703
11:00	0	0	0.0128	6:30	0.01	0.0003	0.0113	2:25	0.06	0.0158	0.0429	9:00	0.12	0.0312	0.2709
Mar. 9 <sup>9</sup>				6:35	0.01	0.0003	0.0113	2:30	0.05	0.0122	0.0441	9:01	0.12	0.0323	0.2714
<i>a. m.</i>				6:40	0.01	0.0003	0.0113	2:35	0.04	0.0097	0.0450	9:02	0.12	0.0323	0.2719
10:53	0	0	0	6:45	0.01	0.0003	0.0113	2:40	0.02	0.0060	0.0456	9:03	0.12	0.0320	0.2724
10:54	T			6:50	0.01	0.0003	0.0113	2:45	0.02	0.0048	0.0460	9:04	0.13	0.0323	0.2729
10:55	T	0.0004		6:55	0.01	0.0003	0.0113	2:50	0.02	0.0042	0.0464	9:05	0.13	0.0346	



TABLE 31.—Run-off from watershed 4-H, April 20, 1939, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1940				1940				1940				1940			
June 8				Sept. 24				Sept. 24				Nov. 9			
p. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches
9:38-----	0.49	0.126	0.2991	2:57-----	0.09	0.0220	0.0111	9:00-----	T	T	0.0540	10:49-----	0.12	0.0305	0.0019
:39-----	.45	.117	.3011	:59-----	.09	.0220	.0119	:30-----	0	0	.0540	:50-----	.14	.0374	.0025
:40-----	.44	.114	.3030	3:00-----	.09	.0231	.0123					:51-----	.17	.0434	.0032
:41-----	.45	.117	.3049	:01-----	.09	.0242	.0127	Nov. 8 <sup>13</sup>				:53-----	.17	.0434	.0046
:42-----	.44	.113	.3068	:02-----	.09	.0242	.0131					:54-----	.18	.0465	.0054
:43-----	.43	.111	.3087	:03-----	.10	.0266	.0135	p. m.				:55-----	.18	.0465	.0062
:44-----	.41	.107	.3105	:04-----	.11	.0279	.0140	11:15-----	0	0	0	:56-----	.19	.0480	.0070
:45-----	.38	.0973	.3122	:05-----	.11	.0292	.0145	:20-----	T	.0003		:57-----	.19	.0498	.0078
:46-----	.37	.0948	.3138	:07-----	.11	.0292	.0155	:25-----	T	.0003		11:00-----	.19	.0498	.0103
:47-----	.32	.0829	.3153	:08-----	.12	.0305	.0160	:30-----	T	.0005	T	:01-----	.19	.0498	.0111
:48-----	.30	.0775	.3166	:09-----	.12	.0318	.0165	12:00-----	T	.0003	.0002	:02-----	.19	.0480	.0119
:49-----	.22	.0571	.3177	:11-----	.12	.0318	.0175					:03-----	.19	.0480	.0127
:50-----	.20	.0522	.3186	:12-----	.13	.0346	.0181	Nov. 9				:04-----	.17	.0449	.0135
:51-----	.19	.0485	.3194	:13-----	.15	.0387	.0187					:05-----	.17	.0434	.0142
:52-----	.16	.0423	.3202	:14-----	.16	.0403	.0194	a. m.				:06-----	.15	.0387	.0149
:53-----	.15	.0398	.3209	:15-----	.16	.0418	.0201	12:15-----	T	.0003	.0003	:07-----	.13	.0346	.0155
:54-----	.15	.0382	.3215	:16-----	.17	.0434	.0208	:25-----	T	.0005	.0004	:08-----	.12	.0305	.0160
:55-----	.14	.0351	.3221	:17-----	.17	.0449	.0215	:29-----	.01	.0015	.0005	:09-----	.11	.0292	.0165
:56-----	.12	.0310	.3227	:18-----	.17	.0449	.0222	:30-----	.01	.0027	.0005	:10-----	.11	.0279	.0170
10:00-----	.11	.0387	.3232	:19-----	.18	.0465	.0230	:35-----	.02	.0054	.0008	:11-----	.10	.0255	.0174
:05-----	.10	.0248	.3236	:20-----	.17	.0449	.0238	:40-----	.03	.0067	.0013	:12-----	.09	.0231	.0178
:10-----	.09	.0227	.3240	:21-----	.17	.0449	.0245	:45-----	.03	.0090	.0019	:13-----	.08	.0209	.0182
:15-----	.08	.0216	.3244	:22-----	.17	.0434	.0252	:50-----	.03	.0090	.0027	:14-----	.07	.0187	.0185
:20-----	.06	.0154	.3259	:23-----	.16	.0403	.0259	:55-----	.02	.0067	.0033	:15-----	.06	.0167	.0188
:25-----	.04	.0102	.3270	:24-----	.15	.0387	.0266	1:00-----	.02	.0048	.0038	:16-----	.06	.0158	.0191
:30-----	.02	.0058	.3277	:25-----	.14	.0374	.0272	:05-----	.01	.0027	.0041	:17-----	.05	.0139	.0193
:35-----	.01	.0035	.3281	:26-----	.13	.0346	.0278	:10-----	.01	.0027	.0043	:18-----	.05	.0130	.0195
:40-----	0	.0013	.3283	:27-----	.12	.0318	.0284	:15-----	.01	.0032	.0043	:19-----	.05	.0122	.0197
	T	.0004	.3284	:28-----	.11	.0292	.0289	:20-----	.02	.0042	.0044	:20-----	.04	.0113	.0199
	T	T		:29-----	.11	.0279	.0294	:25-----	.02	.0054	.0045	:25-----	.03	.0067	.0207
	0	0	.3284	:30-----	.10	.0266	.0299	:30-----	.03	.0067	.0046	:30-----	.01	.0037	.0211
Sept. 24 <sup>12</sup>				:31-----	.09	.0242	.0303	:35-----	.03	.0082	.0047	:35-----	.01	.0019	.0213
a. m.				:32-----	.09	.0220	.0307	:40-----	.04	.0097	.0049	:40-----	T	.0009	.0214
1:51-----	0	0	0	:33-----	.07	.0177	.0310	:45-----	.04	.0113	.0051		T	.0003	
:52-----	T	T		:34-----	.06	.0158	.0313	:50-----	.05	.0122	.0053		T	T	
:53-----	T	T		:35-----	.06	.0158	.0316	:55-----	.05	.0122	.0057		T	T	
:54-----	T	T		:36-----	.05	.0139	.0318	12:00-----	.04	.0105	.0067		0	0	.0214
:55-----	T	T		:37-----	.05	.0139	.0320		.04	.0113	.0076				
2:00-----	T	.0003		:38-----	.05	.0130	.0322		.04	.0105	.0085				
:29-----	T	.0005		:39-----	.05	.0130	.0324		.03	.0082	.0093	Nov. 25 <sup>14</sup>			
:30-----	T	.0012		:40-----	.05	.0122	.0326		.02	.0054	.0099	p. m.			
:31-----	T	.0012		:41-----	.05	.0118	.0328		.01	.0037	.0103	2:40-----	0	0	0
:32-----	T	.0009		:42-----	.04	.0113	.0330		.01	.0032	.0106	:45-----	T	T	
:33-----	.01	.0037	T	:43-----	.04	.0110	.0332	2:00-----	.01	.0037	.0109	:50-----	T	.0005	
:34-----	.09	.0220	.0002	:44-----	.04	.0108	.0334	:05-----	.02	.0060	.0113	:55-----	T	.0009	.0001
:35-----	.11	.0292	.0006	:45-----	.04	.0105	.0336	:10-----	.04	.0105	.0120	:3:00-----	T	.0003	.0002
:36-----	.13	.0330	.0011	:46-----	.04	.0105	.0338	:15-----	.06	.0158	.0131	:3:05-----	T	.0003	.0004
:37-----	.13	.0330	.0017	:47-----	.04	.0105	.0340	:20-----	.07	.0187	.0145	:3:10-----	T	T	.0005
:38-----	.12	.0318	.0022	:48-----	.05	.0130	.0342	:25-----	.09	.0220	.0162	:3:15-----	T	T	.0005
:39-----	.12	.0305	.0027	:49-----	.05	.0130	.0344	:30-----	.07	.0177	.0178	:3:20-----	T	T	.0006
:40-----	.12	.0318	.0032	:50-----	.05	.0130	.0346	:35-----	.04	.0105	.0190	:3:25-----	T	T	.0007
:41-----	.12	.0318	.0037	:51-----	.05	.0122	.0348	:40-----	.02	.0060	.0197	:3:30-----	T	.0003	.0008
:42-----	.14	.0361	.0043	:52-----	.05	.0122	.0350	:45-----	.01	.0037	.0201	:3:35-----	T	T	.0009
:43-----	.15	.0387	.0049	:53-----	.04	.0105	.0352	:50-----	.01	.0019	.0203	:3:40-----	T	T	.0010
:44-----	.14	.0374	.0055	:54-----	.04	.0105	.0354	:55-----	T	.0012	.0204	:3:45-----	T	.0003	.0011
:45-----	.13	.0346	.0061	4:00-----	.04	.0097	.0356	3:00-----	T	.0005	.0205	:3:50-----	T	.0005	.0012
:46-----	.11	.0292	.0066	:05-----	.03	.0090	.0358	:05-----	T	T		:3:55-----	T	.0005	.0013
:47-----	.11	.0279	.0071	:10-----	.03	.0086	.0360	:10-----	T	T		:4:00-----	T	.0003	.0014
:48-----	.11	.0279	.0076	:15-----	.03	.0082	.0362	:15-----	0	0	.0205	:4:05-----	T	.0009	.0016
:49-----	.10	.0266	.0081	:20-----	.03	.0074	.0364	:20-----				:4:10-----	T	.0012	.0018
:50-----	.10	.0255	.0085	:25-----	.03	.0067	.0366	:25-----	.01	.0027	.0001	:4:15-----	T	.0012	.0021
:51-----	.09	.0242	.0089	:30-----	.02	.0060	.0368	:30-----	.01	.0032	.0006	:4:20-----	T	.0005	.0023
:52-----	.09	.0231	.0093	:35-----	.01	.0037	.0370	:35-----	.01	.0037	.0009	:4:25-----	T	T	
:53-----	.09	.0220	.0097	4:00-----	.01	.0019	.0372	:40-----	.05	.0122	.0010	:4:30-----	T	T	
:54-----	.08	.0209	.0101	:05-----	T	.0012	.0374	:45-----	.07	.0177	.0012	:4:35-----	T	T	
:55-----	.08	.0209	.0107	:10-----	T	.0050	.0376	:50-----	.09	.0231	.0015	:4:40-----	0	0	.0023

<sup>1</sup> Total rainfall for storm of June 15, 0.70 inch. Soil moist from rain of June 12. Corn on the contour, 6 inches high in rows 42 inches apart.

<sup>2</sup> Total rainfall for storm of June 20, 1.49 inches. Soil moist before rain. Corn 8 inches high, cultivated June 17. Furrows made by cultivator broke. Several small gullies formed.

<sup>3</sup> Total rainfall for storm of June 21, 0.24 inch. Soil wet and plastic. Gullies formed on previous day concentrated the run-off.

<sup>4</sup> Total rainfall for storm of June 25, 0.61 inch. Soil moist and firm. Corn 10 inches high. 4 new gullies formed.

<sup>5</sup> Total rainfall for storm of July 1, 0.46 inch. Soil dry on surface before rain. Corn 14 inches high, cultivated June 29.

<sup>6</sup> Total rainfall for storm of Aug. 1, 0.44 inch. Soil loose and dry. Corn 40 inches high, badly damaged by grasshoppers and draught.

<sup>7</sup> Total rainfall for storm of Aug. 7, 0.64 inch. Soil dry before rain. Corn 42 inches high, very poor.

<sup>8</sup> Total rainfall for storm of Aug. 11, 0.77 inch. Soil dry before rain. Corn 42 inches high, very poor. Several small gullies formed.

<sup>9</sup> Run-off from melting snow.

<sup>10</sup> Total rainfall for storm of May 17, 1.56 inches. Soil moist before rain. Corn planted in straight rows with lister, May 14.

<sup>11</sup> Total rainfall for storm of June 8, 1.08 inches. Soil dry before rain. Corn 4 inches high, cultivated June 7.

<sup>12</sup> Total rainfall for storm of Sept. 24, 0.61 inch. Soil wet from rains of previous days. Corn very poor, about 4 feet high.

<sup>13</sup> Total rainfall for storm of Nov. 8-9, 0.65 inch. Soil dry before rain. Corn stalks remained in field.

<sup>14</sup> Total rainfall for storm of Nov. 25-26, 0.40 inch. Soil moist before rain. Corn stalks remained in field.



TABLE 32.—Run-off from watershed 5-H, April 20, 1939, to December 31, 1940

LOCATION: Latitude 40°16'00", longitude 98°22'27".

PHYSICAL CHARACTERISTICS:

Drainage area.—3.93 acres.

Length of principal watercourse.—660 feet.

Topography.—Undulating, well drained.

Slope.—Average slope is 4.9 percent. 2 percent of the watershed has a slope of less than 2 percent; 51 percent, 2 to 5 percent; 33 percent, 5 to 8 percent; 11 percent, 8 to 12 percent; and 3 percent has a slope of 12 percent or more.

Erosion condition.—The area has occasional small gullies that are filled up by farm operations but appear again during rains that produce run-off. 25 to 50 percent of the topsoil has been lost.

Soil.—Hastings silt loam, 91 percent; Holdrege silty clay loam, 9 percent. The Holdrege silty clay loam occurs on the lower and steeper parts of the watershed.

LAND USE AND VEGETAL COVER:

Land use distribution.—Cultivated land, 100 percent.

Vegetal cover and soil condition.—The upper part of this area was planted to wheat in the fall of 1938. In 1939 the watershed was planted to corn, winter wheat, and oats in strips. The corn and grain strips were reversed in 1940 and planted only to corn and oats.

Cultural operations in 1939 were as follows:

March 22, strips for oats double-disked.

April 4, oats seeded in strips.

April 24, strips for corn single-disked.

May 13, corn planted in strips with lister.

June 3, corn cultivated with go-dig cultivator.

June 19, corn cultivated with go-dig cultivator.

June 24, oats strips harvested. Oats about 10 inches high, 4 inches stubble remained.

June 26, wheat strips harvested. Wheat about 12 inches high, 4 inches stubble remained.

June 29, corn cultivated with shovel cultivator.

August 31, wheat and oats sample threshed. Oats yield 8.00 bushels an acre; wheat, 3.74 bushels an acre.

The corn was a complete failure and was not harvested.

The stalks matured at a height of about 42 inches and remained on the field for the rest of the year. The grain stubble also was left undisturbed. Grasshoppers and drought damaged the crop severely.

Cultural operations in 1940 were as follows:

March 29, strips to be planted to oats double-disked.

March 30, oats planted in strips with grain drill.

April 16, strips to be planted to corn single-disked.

May 14, corn planted in strips with lister in rows 42 inches apart.

June 5, corn cultivated with go-dig cultivator.

June 19, corn cultivated with go-dig cultivator.

June 29, oats harvested. Yield 8.29 bushels an acre.

August 29, oats strips tilled about 6 inches deep with wide-shovel duckfoot cultivator.

The corn was a complete failure, both for forage and grain.

A sample yielded only 1,514 pounds of forage an acre and 159 pounds of grain an acre. The stalks at maturity were 4 feet high. They were left standing in the field.

MEASUREMENTS:

Precipitation.—Rainfall was measured at recording rain gage B36R (fig. 2). Snowfall was measured by weighing and recording rain and snow gages and by cooperative observers' measurements. Snow inventory on the watershed was obtained by inspection.

Run-off.—Run-off was measured by an H flume 3 feet deep.

Changes in instrumentation during period.—None.

SUMMARY OF RECORDS:

Run-off.—Annual run-off amount 1940, 0.171 inch per hour.

Maximum rate of run-off 1939, 0.71 inch per hour, August 11; maximum rate 1940, 0.034 inch per hour, June 8.

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1939				1939				1939				1939			
May 20 <sup>1</sup>				May '22				June 15				June 15			
a. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches
5:51-----	0	0	0	3:07-----	T	0.0011		3:33-----	0.73	0.185	0.0226	4:04-----	0.27	0.0683	0.0940
:52-----	T	.0011		:08-----	T	.0011		:34-----	.76	.191	.0257	:05-----	.24	.0610	.0950
:53-----	T	.0006		:09-----	T	.0011		:35-----	.84	.213	.0291	:06-----	.21	.0528	.0961
:54-----	T	.0003		:10-----	T	.0011		:36-----	.83	.210	.0326	:07-----	.18	.0466	.0968
:55-----	T	.0003		:11-----	T	.0010		:37-----	.69	.174	.0358	:08-----	.16	.0410	.0957
:56-----	T	.0005		:12-----	T	.0009		:38-----	.63	.159	.0386	:09-----	.14	.0354	.0981
:57-----	T	.0005		:13-----	T	.0008		:39-----	.63	.158	.0412	:10-----	.12	.0302	.0986
:58-----	T	.0005		:14-----	T	.0007		:40-----	.61	.154	.0438	:11-----	.10	.0252	.0991
:59-----	T	.0005		:15-----	T	.0007		:41-----	.61	.155	.0464	:12-----	.08	.0212	.0995
6:00-----	T	.0005		:16-----	T	.0007		:42-----	.58	.146	.0489	:13-----	.08	.0198	.0998
:01-----	T	.0004		:17-----	T	.0006		:43-----	.55	.139	.0513	:14-----	.07	.0177	.1001
:02-----	T	.0003		:18-----	T	.0005		:44-----	.51	.129	.0535	:15-----	.06	.0154	.1004
:03-----	T	.0002		:19-----	T	.0004		:45-----	.48	.120	.0556	:16-----	.05	.0126	.1006
:04-----	T	.0002		:20-----	T	.0004		:46-----	.43	.109	.0575	:17-----	.04	.0103	.1008
:05-----	T	.0001		:21-----	T	.0002		:47-----	.40	.0999	.0592	:18-----	.03	.0088	.1010
:06-----	T	T		:22-----	T	.0001		:48-----	.37	.0937	.0608	:19-----	.03	.0075	.1011
:07-----	T	T		:23-----	0	0	0.0004	:49-----	.35	.0874	.0623	:20-----	.02	.0060	.1012
:08-----	0	0	.0001					:50-----	.35	.0876	.0638	:21-----	.02	.0046	.1013
				June 15 <sup>3</sup>				:51-----	.43	.108	.0654	:22-----	.01	.0034	.1014
May 22 <sup>2</sup>				a. m.				:52-----	.52	.133	.0674	:23-----	.01	.0023	
a. m.				3:23-----	0	0	0	:53-----	.62	.158	.0698	:24-----	.01	.0014	
2:58-----	0	0	0	:24-----	.14	.0365	.0003	:54-----	.76	.191	.0727	:25-----	T	.0010	
:59-----	.01	.0013		:25-----	.37	.0942	.0014	:55-----	.83	.211	.0760	:26-----	T	.0010	
3:00-----	.01	.0013		:26-----	.53	.134	.0033	:56-----	.83	.210	.0795	:27-----	T	.0008	
:01-----	T	.0009		:27-----	.64	.163	.0058	:57-----	.68	.172	.0827	:28-----	T	.0005	
:02-----	T	.0010		:28-----	.60	.152	.0084	:58-----	.54	.136	.0853	:29-----	T	.0002	
:03-----	T	.0011		:29-----	.61	.155	.0110	:59-----	.37	.0924	.0872	:30-----	T	.0002	
:04-----	.01	.0013		:30-----	.67	.170	.0137	4:00-----	.34	.0868	.0887	:31-----	T	.0002	
:05-----	T	.0011		:31-----	.69	.174	.0166	:01-----	.34	.0860	.0901	:32-----	T	.0001	
:06-----	T	.0011		:32-----	.72	.180	.0196	:02-----	.32	.0804	.0915	:33-----	0	0	.1016
								:03-----	.30	.0744	.0928				

See footnotes at end of table, p. 74.



TABLE 32.—Run-off from watershed 5-H, April 20, 1939, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off			Accumulated run-off	Date and time	Instantaneous rate of run-off			Accumulated run-off	Date and time	Instantaneous rate of run-off			Accumulated run-off					
1939					1939					1939					1939				
June 20 <sup>4</sup>					June 20					June 21					Aug. 7				
p. m.	Second-feet	Inches per hour	Inches		p. m.	Second-feet	Inches per hour	Inches		p. m.	Second-feet	Inches per hour	Inches		p. m.	Second-feet	Inches per hour	Inches	
1:13	0	0	0		4:38	0.80	0.202	0.0239		8:40	0.01	0.0028	0.0382		5:03	T	0.0012		
14	.95	.241	.0020		39	.78	.196	.0272		41	.01	.0023			04	T	.0007		
15	1.40	.352	.0069		40	.78	.196	.0305		42	.01	.0017			05	T	.0006		
16	1.50	.379	.0130		41	.78	.196	.0338		43	T	.0012			06	T	.0008		
17	1.41	.356	.0191		42	.70	.177	.0369		44	T	.0008			07	T	.0006		
18	1.33	.336	.0249		43	.60	.151	.0396		45	T	.0005			08	T	.0005		
19	1.33	.336	.0305		44	.56	.142	.0420		46	T	.0004			09	T	.0004		
20	1.09	.274	.0356		45	.51	.128	.0442		47	T	.0002			10	T	.0003		
21	.92	.233	.0398		46	.45	.114	.0462		48	0	0	.0383		11	T	.0002		
22	.95	.241	.0437		47	.43	.109	.0481							12	T	.0001		
23	1.08	.272	.0480		48	.37	.0941	.0498		June 25 <sup>6</sup>					13	0	0		
24	1.49	.376	.0534		49	.37	.0931	.0514		1	.02	.7.06	7.003		30	0	0		
25	2.11	.531	.0610		50	.35	.0883	.0529		July 1 <sup>8</sup>					31	.01	.0013		
26	2.25	.568	.0723		51	.33	.0840	.0543		4:43	0	0	0		32	.01	.0013		
27	2.11	.532	.0877		52	.32	.0799	.0557		a. m.					33	T	.0011		
28	1.77	.447	.1054		53	.30	.0758	.0570		4:43	0	0	0		34	.01	.0013		
29	1.83	.462	.1233		54	.28	.0717	.0582		44	.03	.0064	.0001		35	.01	.0020		
30	2.26	.570	.1395		55	.27	.0677	.0594		45	.02	.0049	.0002		36	.01	.0031		
31	2.62	.660	.1528		56	.25	.0635	.0605		46	.02	.0060	.0003		37	.03	.0085	0.0010	
32	2.47	.6230	.1640		57	.23	.0578	.0615		47	.03	.0065	.0004		38	.10	.0247	.0013	
33	2.30	.580	.1743		58	.20	.0507	.0624		48	.02	.0059	.0005		39	.15	.0369	.0018	
34	2.08	.525	.1835		59	.20	.0495	.0632		49	.07	.0187	.0007		40	.16	.0401	.0024	
35	1.90	.479	.1919		5:00	.18	.0451	.0640		50	.22	.0549	.0013		41	.16	.0394	.0031	
36	2.01	.507	.2001		01	.15	.0380	.0647		51	.21	.0533	.0022		42	.13	.0326	.0037	
37	2.01	.507	.2086		02	.13	.0331	.0653		52	.22	.0555	.0031		43	.11	.0281	.0042	
38	2.11	.532	.2173		03	.12	.0290	.0658		53	.17	.0436	.0039		44	.09	.0227	.0046	
39	2.00	.504	.2259		04	.10	.0250	.0662		54	.15	.0380	.0046		45	.07	.0181	.0049	
40	1.91	.482	.2341		05	.08	.0206	.0666		55	.13	.0330	.0052		46	.06	.0139	.0052	
41	1.77	.446	.2418		06	.06	.0160	.0669		56	.12	.0290	.0057		47	.04	.0104	.0054	
42	1.59	.402	.2489		07	.05	.0120	.0671		57	.10	.0250	.0061		48	.03	.0079	.0056	
43	1.41	.357	.2552		08	.04	.0089	.0673		58	.08	.0210	.0065		49	.02	.0061	.0057	
44	1.26	.319	.2608		09	.02	.0063	.0674		59	.07	.0179	.0068		50	.02	.0045	.0058	
45	1.10	.278	.2658		10	.01	.0034	.0675		5:00	.06	.0152	.0071		51	.02	.0042	.0059	
46	1.00	.254	.2702		11	T	.0004			01	.05	.0137	.0073		52	.01	.0036	.0060	
47	.93	.235	.2743		12	T	.0006			02	.05	.0119	.0075		53	.01	.0028	.0061	
48	.83	.2100	.2780		13	T				03	.04	.0101	.0077		54	.01	.0025		
49	.76	.192	.2814		14	0	0	.0675		04	.03	.0076	.0078		55	.01	.0022		
50	.69	.175	.2845		June 21 <sup>5</sup>					05	.02	.0057	.0079		56	.01	.0022		
51	.61	.153	.2872		p. m.					06	.02	.0046	.0080		57	.01	.0021		
52	.49	.123	.2895		7:49	0	0	0		07	.01	.0034	.0081		58	.01	.0019		
53	.38	.0954	.2913		50	.15	.0380	.0003		08	.01	.0023			59	.01	.0017		
54	.37	.0941	.2929		51	.23	.0584	.0011		09	.01	.0014	.0082		6:00	.01	.0016		
55	.34	.0848	.2944		52	.56	.142	.0028		10	T	.0008			01	.01	.0014		
56	.30	.0767	.2957		53	.60	.151	.0052		11	T	.0004			02	.01	.0013		
57	.26	.0669	.2969		54	.60	.150	.0077		12	T	.0001			03	T	.0012		
58	.22	.0548	.2979		55	.54	.136	.0101		13	0	0	.0082		04	T	.0010		
59	.20	.0495	.2988		56	.46	.117	.0122		Aug. 1 <sup>9</sup>					05	T	.0009		
2:00	.18	.0442	.2996		57	.42	.107	.0141		p. m.					06	T	.0008		
01	.16	.040	.3003		58	.36	.0903	.0157		7:55	0	0	0		07	T	.0006		
02	.14	.0361	.3009		59	.31	.0771	.0171		0	.11	.0287	.0002		08	T	.0005		
03	.12	.0316	.3015		8:00	.26	.0652	.0183		1	.20	.0515	.0009		09	T	.0004		
04	.11	.0275	.3020		01	.23	.0574	.0193		2	.21	.0522	.0018		10	T	.0003		
05	.09	.0238	.3024		02	.24	.0594	.0203		3	.21	.0522	.0027		11	T	.0002		
06	.09	.0221	.3028		03	.23	.0585	.0213		4	.21	.0522	.0036		12	T	.0001		
07	.08	.019	.3031		04	.24	.0593	.0223		5	.17	.0436	.0044		13	0	0	.0065	
08	.06	.0148	.3034		05	.24	.0593	.0233		6	.14	.0361	.0051		9:05	0	0	0	
09	.05	.0137	.3036		06	.24	.0593	.0243		7	.09	.0222	.0056		06	.01	.0024		
10	.05	.0119	.3038		07	.23	.0585	.0253		8	.08	.0203	.0060		07	.01	.0024		
11	.04	.0104	.3040		08	.22	.0558	.0263		9	.07	.0166	.0063		08	.01	.0018		
12	.04	.0090	.3042		09	.21	.0519	.0272		10	.06	.0146	.0066		09	.01	.0018		
13	.03	.0075	.3043		10	.18	.0447	.0280		11	.05	.0120	.0068		10	.01	.0018		
14	.02	.0060	.3044		11	.17	.0434	.0287		12	.04	.0097	.0070		11	.01	.0014		
15	.02	.0050	.3045		12	.16	.0406	.0294		13	.03	.0076	.0071		12	.01	.0013		
16	.02	.0042	.3046		13	.15	.0389	.0301		14	.02	.0057	.0072		13	T	.0012		
17	.01	.0036	.3047		14	.15	.0370	.0307		15	.02	.0046	.0073		14	T	.0010		
18	.01	.0029	.3048		15	.14	.0354	.0313		16	.02	.0039	.0074		15	T	.0009		
19	.01	.0025			16	.13	.0338	.0319		17	.02	.0040	.0075		16	T	.0008		
20	.01	.0019			17	.13	.0323	.0325		18	.01	.0036	.0076		17	T	.0006		
21	.01	.0013			18	.12	.0306	.0330		19	.01	.0031	.0077		18	T	.0005		
22	T	.0008			19	.12	.0290	.0335		20	.01	.0027			19	T	.0004		
23	T	.0004			20	.11	.0273	.0340		21	.01	.0023			20	T	.0003		
24	T	.0002			21	.10													



TABLE 32.—Run-off from watershed 5-H, April 20, 1939, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off			Accumulated run-off	Date and time	Instantaneous rate of run-off			Accumulated run-off	Date and time	Instantaneous rate of run-off			Accumulated run-off					
1939					1940					1940					1940				
Aug. 11					Feb. 15					Mar. 7 <sup>12</sup>					May 17				
p. m.	Second-foot	Inches per hour	Inches		p. m.	Second-foot	Inches per hour	Inches		p. m.	Second-foot	Inches per hour	Inches		a. m.	Second-foot	Inches per hour	Inches	
10:07	2.80	0.707	0.1342		8:00	T	T	0.0074		1:25	0	0	0		2:50	0.02	0.0053	0.0040	
:08	2.58	.651	.1455		9:00	0	0	.0074		:26	T	.0011	.0011		:55	.01	.0031	.0044	
:09	2.38	.601	.1559		Feb. 27 <sup>12</sup>					:27	.01	.0015	.0015		3:00	.01	.0016	.0046	
:10	2.24	.565	.1656		p. m.					:28	.01	.0016	.0016		:05	T	.0008	.0047	
:11	1.97	.497	.1745		1:40	0	0	0		:29	.01	.0017	.0017	.0004	:10	T	.0008	.0048	
:12	1.79	.451	.1824		:41	T	.0011	.0011		:45	.01	.0017	.0017	.0008	:20	T	.0005	.0049	
:13	1.66	.418	.1896		2:00	.01	.0015	.0015	.0004	2:00	.01	.0017	.0017	.0008	:30	T	.0008	.0050	
:14	1.58	.400	.1964		:42	.01	.0015	.0015	.0009	3:00	.01	.0017	.0017	.0025	:35	T	.0011	.0051	
:15	1.45	.366	.2028		:43	.01	.0016	.0016	.0015	4:00	.01	.0015	.0015	.0041	:40	.01	.0018	.0052	
:16	1.32	.333	.2086		:44	.01	.0017	.0017	.0029	5:00	T	.0011	.0011	.0054	:45	.01	.0027	.0054	
:17	1.21	.306	.2139		:45	.01	.0017	.0017	.0061	6:00	T	.0005	.0005	.0062	:50	.01	.0031	.0056	
:18	1.12	.282	.2188		2:00	.01	.0018	.0018	.0075	7:00	T	.0003	.0003	.0066	:55	.01	.0036	.0059	
:19	1.01	.254	.2233		:30	.01	.0027	.0027	.0087	8:00	T	T	.0068	.0068	4:00	.02	.0047	.0063	
:20	.87	.220	.2273		3:00	.01	.0031	.0031	.0097	9:00	0	0	T	.0068	:05	.03	.0066	.0068	
:21	.79	.199	.2308		4:00	.01	.0031	.0031	.0105	Mar. 15 <sup>12</sup>					:15	.03	.0066	.0079	
:22	.70	.176	.2339		:30	.01	.0027	.0027	.0118	p. m.	0	0	0		:30	.02	.0059	.0095	
:23	.60	.151	.2366		5:00	.01	.0022	.0022	.0126	1:15	0	0	0		:45	.02	.0059	.0110	
:24	.52	.132	.2390		:30	.01	.0018	.0018	.0128	:16	T	.0003	.0003		:50	.03	.0080	.0116	
:25	.46	.117	.2411		6:00	.01	.0015	.0015	.0128	:17	T	.0011	.0011		:55	.04	.0103	.0124	
:26	.44	.112	.2430		7:00	T	.0011	.0011	.0128	:20	T	.0011	.0011		5:00	.04	.0111	.0133	
:27	.41	.103	.2448		8:00	T	.0005	.0005	.0128	:30	.01	.0015	.0015	.0002	:05	.04	.0103	.0142	
:28	.38	.0949	.2465		9:00	T	T	.0128	.0128	:40	.01	.0022	.0022	.0005	:10	.04	.0095	.0150	
:29	.34	.0848	.2480		10:00	0	0	.0128	.0128	2:00	.01	.0022	.0022	.0013	:15	.03	.0073	.0157	
:30	.31	.0780	.2494		Feb. 29 <sup>12</sup>					:30	.01	.0026	.0025	.0013	:20	.02	.0053	.0162	
:31	.30	.0758	.2507		p. m.					:30	.01	.0036	.0041	.0013	:25	.02	.0047	.0166	
:32	.28	.0717	.2519		12:17	0	0	0		:30	.02	.0047	.0062	.0025	:35	.02	.0047	.0174	
:33	.27	.0677	.2531		:18	.01	.0026	.0026	.0001	4:00	.02	.0053	.0087	.0087	:40	.01	.0036	.0178	
:34	.25	.0635	.2542		:19	.01	.0031	.0031	.0004	:30	.02	.0059	.0115	.0115	:45	.01	.0027	.0181	
:35	.24	.0595	.2552		:20	.01	.0034	.0034	.0008	5:00	.02	.0053	.0143	.0143	6:00	T	.0005	.0185	
:36	.22	.0559	.2562		:25	.02	.0041	.0041	.0008	6:00	.02	.0047	.0193	.0193	:15	T	T	.0186	
:37	.21	.0524	.2571		:30	.02	.0053	.0053	.0023	7:00	.01	.0036	.0235	.0235	:45	T	T		
:38	.20	.0495	.2579		:45	.03	.0066	.0066	.0023	8:00	.01	.0015	.0261	.0261	7:00	T	.0005	.0187	
:39	.18	.0462	.2587		1:00	.03	.0073	.0073	.0041	9:00	T	T	.0269	.0269	30	.01	.0018	.0189	
:40	.17	.0432	.2594		:30	.03	.0073	.0073	.0041	10:00	0	0	.0269	.0269	:35	.01	.0031	.0190	
:41	.15	.0378	.2601		:45	.02	.0059	.0093	.0077	Mar. 16 <sup>12</sup>					:40	.01	.0031	.0192	
:42	.14	.0360	.2607		2:00	.02	.0053	.0107	.0107	a. m.	0	0	0		:45	.01	.0031	.0195	
:43	.13	.0327	.2613		:30	.02	.0047	.0132	.0132	9:05	0	0	0		:50	.01	.0027	.0197	
:44	.12	.0295	.2618		3:00	.02	.0047	.0156	.0156	:10	T	.0003	.0003		:55	.01	.0018	.0199	
:45	.10	.0265	.2623		:30	.02	.0038	.0177	.0177	:15	T	.0005	.0005		8:00	.01	.0015	.0200	
:46	.09	.0236	.2627		4:00	.01	.0036	.0195	.0195	:30	T	.0007	.0007	.0002	:15	T	.0005	.0202	
:47	.08	.0208	.2631		5:00	.01	.0031	.0212	.0212	:45	T	.0008	.0008	.0004	:45	T	.0006		
:48	.07	.0182	.2634		:30	.01	.0022	.0225	.0225	10:00	T	.0008	.0008	.0006	:50	T	.0003	.0205	
:49	.06	.0157	.2637		6:00	.01	.0018	.0246	.0246	11:00	T	.0005	.0012	.0012	9:00	T	.0003	.0207	
:50	.05	.0137	.2639		7:00	T	.0005	.0259	.0259	:30	T	.0003	.0003	.0014	10:00	T	T		
:51	.05	.0126	.2641		8:00	T	T	.0261	.0261	:45	T	.0003	.0003	.0015	11:00	T	T		
:52	.04	.0113	.2643		9:00	0	C	.0261	.0261	:50	.01	.0027	.0027	.0016	12:00	0	0	.0207	
:53	.04	.0101	.2645		Mar. 4 <sup>12</sup>					:52	.02	.0047	.0020	.0024					
:54	.04	.0090	.2647		p. m.					:55	.02	.0053	.0024	.0024					
:55	.03	.0076	.2648		1:25	0	0	0		p. m.									
:56	.02	.0060	.2649		:26	T	T			12:30	.02	.0047	.0049	.0049					
:57	.02	.0048	.2650		:27	T	.0008	.0008		1:00	.02	.0041	.0071	.0071					
:58	.02	.0042	.2651		:28	.01	.0015	.0015		:30	.02	.0053	.0095	.0095					
:59	.01	.0034	.2652		:29	.01	.0018	.0018	.0009	2:00	.02	.0047	.0120	.0120					
11:00	.01	.0026			:30	.01	.0022	.0019	.0019	3:00	.02	.0041	.0164	.0164					
:01	.01	.0014			2:00	.01	.0018	.0009	.0009	4:00	.01	.0034	.0202	.0202					
:02	T	.0008			:30	.01	.0022	.0031	.0031	5:00	.01	.0027	.0232	.0232					
:03	T	.0004			4:00	.01	.0027	.0059	.0059	6:00	.01	.0021	.0256	.0256					
:04	T	T			:30	.01	.0022	.0071	.0071	7:00	T	.0011	.0272	.0272					
:05	0	0	.2653		5:00	.01	.0022	.0082	.0082	8:00	T	.0005	.0280	.0280					
1940					6:00	.01	.0018	.0092	.0092	9:00	T	T	.0282	.0282					
Feb. 14 <sup>12</sup>					:30	.01	.0018	.0101	.0101	10:00	0	0	.0282	.0282					
p. m.	0	0	0		7:00	T	.0011	.0115	.0115	May 17 <sup>13</sup>									
:12	T	.0005			8:00	T	.0005	.0123	.0123	a. m.	0	0	0						
:13	T	.0011			9:00	T	.0005	.0125	.0125	2:09	.01	.0015	.0015						
:14	T	.0011	.0003		10:00	0	0	.0125	.0125	:10	T	.0011	.0011	.0001					
:30	T	.0011	.0003		Mar. 5 <sup>12</sup>					:15	.01	.0020	.0001	.0001					
4:00	T	.0010	.0008		12:42	0	0	0		:20	.01	.0015	.0004	.0004					
:30	T	.0008	.0012		:43	T	.0011	.0011		:25	.01	.0011	.0005	.0005					
5:00	T	.0007	.0016		:44	.01	.0015	.0015	.0004	:29	T	.0011	.0005	.0005					
:30	T	.0003	.0018		:45	.01	.0018	.0018	.0009	:30	.02	.0047	.0005	.0005					
6:00	0	0	.0019		1:00	.01	.0018	.0004	.0004	:31	.04	.0095	.0006	.0006					
Feb. 15 <sup>12</sup>					:15	.01	.0022	.0021	.0021	:32	.04	.0095	.0008	.0008					
p. m.	0	0	0		:45	.01	.0022	.0024	.0024	:33	.03	.0080	.0009	.0009					
2:00	0	0	0		2:00	.01	.0024	.0027	.0027	:34	.03	.0066	.0010	.0010					
:01	T	.0008			3:00	.01	.0022	.0050	.0050	:35	.02	.0059	.0011	.0011					
:02	T	.0011	.0001		4:00	.01	.0022	.0072	.0072	:36	.02	.0056	.0012</						

See footnotes at end of table, p. 74.



TABLE 32.—Run-off from watershed 5-H, April 20, 1939, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1940				1940				1940				1940			
June 8				June 9				Sept. 24				Sept. 24			
p. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches
10:00-----	0.01	0.0031	0.0131	1:00-----	0	0	0.0145	1:57-----	T	T		2:45-----	T	0.0003	0.0005
:05-----	.01	.0024	.0133					:59-----	T	T		3:00-----	T	.0003	.0006
:15-----	.01	.0018	.0137	Sept. 24 <sup>15</sup>				2:00-----	T	0.0003		:15-----	T	.0003	.0007
:30-----	T	.0008	.0140					:10-----	T	.0005	0.0001	:30-----	T	T	.0008
11:00-----	T	.0003	.0143	a. m.				:20-----	T	.0003	.0002	5:30-----	T	T	
12:00-----	T	T	.0145	1:56-----	0	0	0	:30-----	T	.0011	.0003	6:00-----	0	0	.0008

<sup>1</sup> Total rainfall for storm of May 20, 0.86 inch. Soil dry before rain. Corn, wheat, and oats in strips. Corn planted in rows, 42 inches apart with lister planter. Wheat 10 inches high, thin. Oats 4 inches high, thin. Corn not up.

<sup>2</sup> Total rainfall for storm of May 22, 0.39 inch. Soil moist and firm before rain. Conditions approximately the same as May 20.

<sup>3</sup> Total rainfall for storm of June 15, 0.70 inch. Soil moist from rain of June 12. Corn 6 inches high. Oats 8 inches high, thin. Wheat 10 inches high, thin.

<sup>4</sup> Total rainfall for storm of June 20, 1.49 inches. Soil moist before rain. Corn cultivated June 19, 8 inches high. Oats, 10 inches high. Wheat 12 inches high. Cultivator furrows broke. Several small gullies formed.

<sup>5</sup> Total rainfall for storm of June 21, 0.24 inch. Soil wet and plastic before rain.

<sup>6</sup> Total rainfall for storm of June 25, 0.61 inch. Soil moist and firm before rain. Corn 15 inches high. Oats harvested. Wheat 12 inches high. Few new gullies.

<sup>7</sup> Maximum rate and total accumulation estimated.

<sup>8</sup> Total rainfall for storm of July 1, 0.46 inch. Soil dry on surface before rain. Corn

cultivated June 29, 16 inches high. Oats and wheat harvested, stubble remained.

<sup>9</sup> Total rainfall for storm of Aug. 1, 0.44 inch. Soil loose and dry before rain. Grain harvested. Corn 42 inches high, badly damaged by grasshoppers and drought.

<sup>10</sup> Total rainfall for storm of Aug. 6, 0.64 inch. Soil dry before rain. Corn 42 inches high, very poor. Grain stubble. Grain strips growing up to Russian thistle.

<sup>11</sup> Total rainfall for storm of Aug. 11, 0.77 inch. Soil dry before rain. Corn 42 inches high. Grain stubble. Russian thistles in grain strips.

<sup>12</sup> Run-off from melting snow.

<sup>13</sup> Total rainfall for storm of May 17, 1.56 inches. Soil moist before rain. Strips of corn had just been planted with lister. Strips of oats were 7 inches high. Russian thistles 4 inches high in oats.

<sup>14</sup> Total rainfall for storm of June 8, 1.08 inches. Soil dry before rain. Corn 4 inches high had been cultivated June 5. Oats were 14 inches high.

<sup>15</sup> Total rainfall for storm of Sept. 24, 0.61 inch. Soil wet from rains of previous days. Corn very poor. Oat strips cultivated with a duck-foot cultivator, Aug. 29.

TABLE 33.—Run-off from watershed 6-H, April 20, 1939, to December 31, 1940

LOCATION: Latitude 40°16'04", longitude 98°22'27".

#### PHYSICAL CHARACTERISTICS:

Drainage area.—4.16 acres.

Length of principal watercourse.—600 feet.

Topography.—Undulating, well drained.

Slope.—Average slope is 4.4 percent. 6 percent of the watershed has a slope of less than 2 percent; 63 percent, 2 to 5 percent; 21 percent, 5 to 8 percent; 9 percent, 8 to 12 percent; and 1 percent has a slope of 12 percent or more.

Erosion condition.—No depressions or gullies. 26 percent of the area has lost less than 25 percent of the topsoil. 74 percent of the area has lost 25 to 50 percent of the topsoil.

Soil.—Hastings silt loam, 76 percent; Holdrege silty clay loam, 24 percent. The Holdrege silty clay loam occurs on the lower and steeper parts of the watershed.

#### LAND USE AND VEGETAL COVER:

Land use distribution.—Cultivated land, 100 percent.

Vegetal cover and soil condition.—The upper half of the watershed was planted to wheat in the fall of 1938, and it was allowed to remain until maturity. The crop on the remainder of the watershed was oats planted on the contour. In the fall of 1939 winter wheat was planted in straight rows, east and west. Only that in the lower part of the watershed sprouted. The remainder of the area lay idle in 1940. Cultural operations in 1939 were as follows:

March 22, lower part of watershed double-disked on the contour.

March 31, oats seeded on contour.

June 24, oats and wheat harvested. Oats about 10 inches high and wheat about 12 inches. 4 inches of stubble remained. Oats yield 8.23 bushels an acre and the wheat 4.90 bushels an acre.

July 22–24, plowed east and west in straight lines with moldboard plow.

August 22, double-disked east and west. Dragged east and west with peg-tooth harrow.

September 20, seeded to wheat east and west.

Wheat sprouted but did not thrive except in the lower part of the watershed. The 1939 crop was badly damaged by grasshoppers and drought.

Cultural operations in 1940 were as follows:

July 5, wheat in lower part of the watershed harvested. Yield 3.18 bushels an acre when averaged for the entire watershed.

July 27, tilled about 6 inches deep in straight lines with wide-shovel duck-foot cultivator in order to control weeds.

August 30, tilled about 6 inches deep in straight lines with wide-shovel duck-foot cultivator in order to control weeds.

#### MEASUREMENTS:

Precipitation.—Rainfall was measured at recording rain gage B36R (fig. 2). Snowfall was measured by weighing and recording rain and snow gages and by cooperative observers' measurements. Snow inventory on the watershed was obtained by inspection.

Run-off.—Run-off was measured by an H flume 3 feet deep.

Changes in instrumentation during period.—None.

#### SUMMARY OF RECORDS:

Run-off.—Annual run-off amount 1940, 0.536 inch. Maximum rate of run-off 1939, 1.50 inches per hour, June 20; maximum rate 1940, 0.612 inch per hour, May 17.

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1939				1939				1939				1939			
May 20 <sup>1</sup>				May 20				May 20				May 20			
a. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches
5:35-----	0	0	0	5:38-----	T	0.0002		5:41-----	0	0		5:46-----	0.17	0.0400	0.0003
:36-----	T	.0002		:39-----	T	.0002		:44-----	0	0		:47-----	.74	.176	.0021
:37-----	T	.0002		:40-----	T	.0001		:45-----	T	.0006		:48-----	.95	.227	.0055

See footnotes at end of table, p. 77.



TABLE 33.—Run-off from watershed 6-H, April 20, 1939, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1939				1939				1939				1939			
May 20				June 12				June 15				June 20			
a. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches
5:49	0.92	0.220	0.0092	9:39	0.29	0.0696	0.0300	4:21	0.02	0.0050	0.2421	2:28	0.04	0.0090	0.5968
5:50	.97	.232	.0130	9:40	.26	.0622	.0311	4:22	.02	.0041	.2422	2:29	.03	.0079	.5969
5:51	.85	.203	.0166	9:41	.23	.0555	.0321	4:23	.01	.0031	.2423	2:30	.03	.0072	.5970
5:52	.83	.198	.0199	9:42	.20	.0486	.0330	4:24	.01	.0025		2:31	.03	.0066	.5971
5:53	.78	.185	.0231	9:43	.18	.0420	.0338	4:25	.01	.0023		2:32	.02	.0058	.5972
5:54	.62	.149	.0259	9:44	.15	.0367	.0345	4:26	.01	.0023		2:33	.02	.0054	.5973
5:55	.57	.136	.0283	9:45	.13	.0319	.0351	4:27	.01	.0019		2:34	.02	.0050	.5974
5:56	.55	.130	.0305	9:46	.11	.0269	.0356	4:28	.01	.0017		2:35	.02	.0041	.5975
5:57	.44	.104	.0325	9:47	.09	.0219	.0360	4:29	.01	.0014		2:36	.01	.0031	.5976
5:58	.35	.0842	.0341	9:48	.09	.0212	.0364	4:30	T	.0011		2:37	.01	.0025	
5:59	.33	.0782	.0355	9:49	.08	.0195	.0367	4:31	T	.0008		2:38	.01	.0022	
6:00	.30	.0710	.0367	9:50	.05	.0128	.0370	4:32	T	.0006		2:39	.01	.0020	
6:01	.25	.0591	.0378	9:51	.05	.0125	.0372	4:33	T	.0004		2:40	.01	.0016	
6:02	.22	.0534	.0387	9:52	.05	.0117	.0374	4:34	T	.0002		2:41	T	.0013	
6:03	.18	.0427	.0395	9:53	.04	.0084	.0376	4:35	T	T		2:42	T	.0008	
6:04	.18	.0420	.0402	9:54	.04	.0088	.0377	4:36	0	0	.2425	2:43	T	.0002	
6:05	.15	.0367	.0409	9:55	.04	.0083	.0378					2:44	0	0	.5978
6:06	.13	.0319	.0415	9:56	.04	.0087	.0379	June 20 <sup>5</sup>				4:26	0	0	0
6:07	.11	.0269	.0420	9:57	.03	.0077	.0380	p. m.				4:27	.02	.0049	.0049
6:08	.09	.0219	.0424	9:58	.03	.0066	.0381	1:17	0	0	0	4:28	.05	.0116	.0001
6:09	.09	.0212	.0428	9:59	.02	.0058	.0382	1:18	1.62	.387	.0032	4:29	.08	.0186	.0004
6:10	.09	.0210	.0432	10:00	.02	.0054	.0383	1:19	3.78	.902	.0139	4:30	.10	.0243	.0008
6:11	.07	.0165	.0435	10:01	.02	.0050	.0384	1:20	4.92	1.17	.0312	4:31	.14	.0322	.0013
6:12	.06	.0149	.0438	10:02	.02	.0038	.0385	1:21	4.46	1.06	.0498	4:32	.16	.0388	.0019
6:13	.06	.0135	.0440	10:03	.01	.0020		1:22	4.34	1.04	.0673	4:33	.20	.0465	.0026
6:14	.05	.0113	.0442	10:04	.01	.0012		1:23	4.64	1.11	.0851	4:34	.23	.0558	.0035
6:15	.04	.0097	.0444	10:05	T	.0011		1:24	4.51	1.08	.1033	4:35	.25	.0594	.0045
6:16	.04	.0088	.0446	10:06	.01	.0013		1:25	4.57	1.09	.1213	4:36	.28	.0668	.0056
6:17	.03	.0080	.0447	10:07	T	.0011		1:26	4.93	1.18	.1402	4:37	.29	.0698	.0067
6:18	.03	.0077	.0448	10:08	T	.0011		1:27	5.40	1.29	.1607	4:38	.31	.0748	.0079
6:19	.03	.0072	.0449	10:09	T	.0008		1:28	5.97	1.42	.1833	4:39	.35	.0830	.0092
6:20	.02	.0059	.0450	10:10	T	.0004		1:29	6.09	1.45	.2073	4:40	.39	.0932	.0107
6:21	.02	.0043	.0451	10:11	T	.0002		1:30	6.28	1.50	.2319	4:41	.47	.112	.0124
6:22	.01	.0036	.0452	10:12	0	0	.0387	1:31	5.61	1.34	.2555	4:42	.55	.131	.0144
6:23	.01	.0031	.0453	June 15 <sup>4</sup>				1:32	5.61	1.34	.2778	4:43	.70	.168	.0169
6:24	.01	.0025		a. m.				1:33	5.02	1.20	.2989	4:44	.78	.185	.0198
6:25	.01	.0022		3:28	0	0	0	1:34	4.59	1.09	.3180	4:45	.80	.192	.0229
6:26	.01	.0020		3:29	.32	.0765	.0006	1:35	4.24	1.01	.3355	4:46	.84	.201	.0262
6:27	.01	.0018		3:30	.99	.235	.0032	1:36	3.96	.944	.3518	4:47	.85	.203	.0296
6:28	.01	.0018		3:31	2.05	.489	.0092	1:37	3.86	.920	.3673	4:48	.75	.179	.0328
6:29	.01	.0015		3:32	2.83	.675	.0189	1:38	3.72	.887	.3824	4:49	.75	.179	.0358
6:30	T	.0011		3:33	3.13	.746	.0307	1:39	3.41	.813	.3966	4:50	.64	.152	.0386
6:31	T	.0008		3:34	3.36	.801	.0436	1:40	3.35	.799	.4100	4:51	.63	.150	.0411
6:32	T	.0006		3:35	3.64	.868	.0575	1:41	3.36	.801	.4233	4:52	.64	.153	.0436
6:33	T	.0004		3:36	3.76	.896	.0722	1:42	3.33	.794	.4366	4:53	.59	.140	.0460
6:34	T	.0002		3:37	4.13	.985	.0879	1:43	3.27	.780	.4497	4:54	.52	.123	.0482
6:35	T	T		3:38	4.05	.966	.1041	1:44	3.16	.753	.4625	4:55	.51	.121	.0502
6:36	0	0	.0455	3:39	4.13	.985	.1041	1:45	2.98	.710	.4747	4:56	.51	.121	.0522
May 22 <sup>2</sup>				3:40	3.54	.844	.1192	1:46	2.69	.641	.4860	4:57	.48	.115	.0542
a. m.				3:41	3.54	.844	.1333	1:47	2.54	.606	.4964	4:58	.44	.106	.0560
2:30	0	0	0	3:42	3.26	.777	.1468	1:48	2.17	.517	.5058	4:59	.40	.0954	.0577
2:31	.01	.0023		3:43	2.72	.648	.1587	1:49	2.17	.517	.5058	5:00	.38	.0894	.0592
2:32	T	.0011		3:44	2.41	.575	.1689	1:50	2.05	.489	.5142	5:01	.35	.0825	.0606
2:33	T	.0005		3:45	2.23	.532	.1781	1:51	1.98	.472	.5222	5:02	.31	.0748	.0619
2:34	T	.0003		3:46	1.88	.448	.1863	1:52	1.84	.439	.5298	5:03	.28	.0672	.0631
2:35	T	.0005		3:47	1.77	.422	.1936	1:53	1.63	.389	.5367	5:04	.26	.0615	.0642
2:36	T	.0005		3:48	1.45	.346	.2000	1:54	1.44	.343	.5428	5:05	.24	.0580	.0652
2:37	T	.0005		3:49	1.17	.279	.2052	1:55	1.38	.329	.5484	5:06	.21	.0496	.0661
2:38	T	.0011		3:50	1.15	.274	.2098	1:56	1.19	.284	.5535	5:07	.19	.0443	.0669
2:39	T	.0007		3:51	1.04	.248	.2142	1:57	1.08	.258	.5580	5:08	.17	.0410	.0676
2:40	T	.0006		3:52	.88	.210	.2180	1:58	1.06	.253	.5623	5:09	.16	.0377	.0683
2:41	T	.0005		3:53	.68	.162	.2211	1:59	.90	.215	.5662	5:10	.14	.0334	.0689
2:42	T	.0005		3:54	.60	.143	.2236	2:00	.78	.186	.5695	5:11	.12	.0296	.0694
2:43	T	.0004		3:55	.52	.124	.2258	2:01	.70	.167	.5724	5:12	.11	.0267	.0699
2:44	T	.0003		3:56	.52	.124	.2258	2:02	.57	.136	.5749	5:13	.10	.0246	.0703
2:45	T	.0003		3:57	.44	.105	.2277	2:03	.55	.132	.5771	5:14	.09	.0210	.0707
2:46	T	.0003		3:58	.41	.0968	.2294	2:04	.49	.117	.5792	5:15	.08	.0191	.0710
2:47	T	.0002		3:59	.36	.0865	.2309	2:05	.46	.110	.5811	5:16	.08	.0187	.0713
2:48	T	.0002		4:00	.30	.0715	.2322	2:06	.44	.104	.5829	5:17	.07	.0170	.0716
2:49	T	.0001		4:01	.28	.0675	.2334	2:07	.35	.0842	.5845	5:18	.07	.0155	.0719
2:50	T	T		4:02	.26	.0627	.2345	2:08	.30	.0713	.5858	5:19	.06	.0137	.0721
2:51	T	T		4:03	.24	.0565	.2355	2:09	.28	.0663	.5869	5:20	.05	.0122	.0723
2:52	0	0	.0003	4:04	.17	.0408	.2363	2:10	.28	.0660	.5880	5:21	.04	.0106	.0725
June 12 <sup>3</sup>															



TABLE 33.—Run-off from watershed 6—H, April 20, 1939, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1939				1939				1940				1940			
June 20				June 25				Feb. 27				Mar. 15 <sup>10</sup>			
p. m.				a. m.				p. m.				p. m.			
5:40	Second-foot	Inches per hour	Inches	2:03	Second-foot	Inches per hour	Inches	2:08	Second-foot	Inches per hour	Inches	2:24	Second-foot	Inches per hour	Inches
5:41	T	0.0001	0.0733	2:04	0.04	0.0088	0.0114	2:09	T	0.0006		2:25	0	0	0
June 21 <sup>6</sup>															
p. m.															
7:48	0	0	0	2:05	0.03	0.0074	0.0115	2:15	T	0.0008	0.0001	3:00	T	0.0005	0
7:49	0.02	0.0036		2:06	0.02	0.0053	0.0116	3:00	T	0.0008	0.0007	3:00	T	0.0006	
7:50	0.01	0.0017		2:07	0.02	0.0043	0.0118	3:15	T	0.0011	0.0009	3:00	T	0.0008	0.0002
7:51	T	0.0006		2:08	0.01	0.0032	0.0119	3:45	T	0.0011	0.0015	3:15	T	0.0010	0.0004
7:52	T	0.0011	0.0001	2:09	0.01	0.0020		4:00	T	0.0008	0.0017	3:30	T	0.0011	0.0006
7:53	0.16	0.0380	0.0004	2:10	0.01	0.0018		4:30	T	0.0005	0.0020	3:45	0.01	0.0014	0.0009
7:54	0.21	0.0503	0.0011	2:11	0.01	0.0023		5:00	T	0.0005	0.0022	3:50	0.01	0.0016	0.0010
7:55	0.22	0.0529	0.0020	2:12	0.01	0.0019		6:00	T	T	0.0024	3:55	0.01	0.0023	0.0012
7:56	0.25	0.0594	0.0029	2:13	0.01	0.0017		7:00	0	0	0.0024	4:00	0.01	0.0030	0.0014
7:57	0.28	0.0675	0.0040	2:14	0.01	0.0014		Feb. 29 <sup>10</sup>				4:05	0.01	0.0030	0.0016
7:58	0.31	0.0741	0.0052	2:15	T	0.0011		p. m.				4:10	0.01	0.0025	0.0018
7:59	0.29	0.0696	0.0064	2:16	T	0.0008		12:18	0	0	0	4:15	0.01	0.0021	0.0020
8:00	0.26	0.0629	0.0075	2:17	T	0.0006		2:20	T	0.0008	0.0001	4:30	0.01	0.0017	0.0024
8:01	0.21	0.0491	0.0084	2:18	T	0.0004		2:25	T	0.0008	0.0002	4:45	0.01	0.0016	0.0028
8:02	0.19	0.0453	0.0092	2:19	T	0.0002		2:30	T	0.0008	0.0004	5:00	0.01	0.0015	0.0032
8:03	0.17	0.0398	0.0099	2:20	T	T	0.0121	2:35	T	0.0008	0.0006	5:30	0.01	0.0014	0.0039
8:04	0.15	0.0360	0.0105	2:21	0	0		3:00	T	0.0008	0.0004	6:00	T	0.0011	0.0045
8:05	0.14	0.0334	0.0111	July 1 <sup>8</sup>				3:45	T	0.0006	0.0006	7:00	T	0.0005	0.0053
8:06	0.14	0.0322	0.0116	a. m.				1:00	T	0.0005	0.0009	8:00	T	T	0.0055
8:07	0.12	0.0296	0.0121	5:02	0	0	0	2:00	T	0.0005	0.0011	9:00	0	0	0.0055
8:08	0.13	0.0308	0.0126	5:03	0.09	0.0224	0.0002	3:00	T	0.0005	0.0013	Mar 16 <sup>10</sup>			
8:09	0.14	0.0346	0.0131	5:04	0.05	0.0112	0.0005	3:00	T	0.0004	0.0015	a. m.			
8:10	0.13	0.0310	0.0136	5:05	0.05	0.0112	0.0007	3:30	T	0.0004	0.0017	8:59	0	0	0
8:11	0.10	0.0250	0.0141	5:06	0.05	0.0112	0.0009	4:00	T	0.0002	0.0019	9:00	T	T	
8:12	0.10	0.0236	0.0145	5:07	0.03	0.0083	0.0011	4:30	T	0.0001	0.0020	9:00	T	T	
8:13	0.10	0.0231	0.0149	5:08	0.04	0.0097	0.0013	5:00	T	T		10:00	T	T	
8:14	0.09	0.0220	0.0153	5:09	0.03	0.0074	0.0014	5:30	T	T		1:15	T	T	
8:15	0.08	0.0191	0.0156	5:10	0.03	0.0061	0.0015	6:00	T	T		3:00	T	0.0001	
8:16	0.06	0.0150	0.0159	5:11	0.02	0.0043	0.0016	6:30	T	T		3:45	T	0.0002	
8:17	0.05	0.0127	0.0161	5:12	0.01	0.0036	0.0017	7:00	0	0	0.0020	4:00	T	0.0005	0.0001
8:18	0.05	0.0112	0.0163	5:13	0.01	0.0031	0.0018	Mar. 4 <sup>10</sup>				4:15	T	0.0008	0.0003
8:19	0.04	0.0106	0.0165	5:14	0.01	0.0025		2:51	0	0	0	4:30	T	0.0009	0.0005
8:20	0.04	0.0088	0.0167	5:15	0.01	0.0023		2:52	T	0.0005		4:45	T	0.0011	0.0007
8:21	0.03	0.0074	0.0168	5:16	0.01	0.0023		3:00	T	0.0005		5:00	0.01	0.0017	0.0011
8:22	0.03	0.0063	0.0169	5:17	0.01	0.0019		3:05	T	0.0005		p. m.			
8:23	0.03	0.0060	0.0170	5:18	0.01	0.0017		3:10	T	0.0005		12:15	0.01	0.0024	0.0016
8:24	0.03	0.0062	0.0171	5:19	0.01	0.0014		3:15	T	0.0006	0.0001	12:30	0.01	0.0025	0.0022
8:25	0.02	0.0053	0.0172	5:20	T	0.0011		3:30	T	0.0006	0.0006	1:00	0.01	0.0027	0.0028
8:26	0.02	0.0043	0.0173	5:21	T	0.0008		3:45	T	0.0007	0.0005	1:15	0.01	0.0034	0.0036
8:27	0.02	0.0036	0.0174	5:22	T	0.0006		4:00	T	0.0007	0.0009	1:30	0.02	0.0044	0.0046
8:28	0.01	0.0031	0.0175	5:23	T	0.0004		4:30	T	0.0008	0.0013	1:45	0.02	0.0056	0.0058
8:29	0.01	0.0027		5:24	T	0.0002		5:00	T	0.0009	0.0017	2:00	0.03	0.0066	0.0073
8:30	0.01	0.0024		5:25	T	T	0.0020	5:30	T	0.0005	0.0020	2:15	0.03	0.0071	0.0090
8:31	0.01	0.0023		5:26	0	0	0.0020	6:00	T	0.0002	0.0024	2:30	0.03	0.0083	0.0109
8:32	0.01	0.0019		Aug. 11 <sup>9</sup>				7:00	T	T		3:00	0.04	0.0090	0.0131
8:33	0.01	0.0017		p. m.				8:00	T	T		3:45	0.04	0.0097	0.0155
8:34	0.01	0.0014		9:58	0	0	0	9:00	0	0	0.0024	4:00	0.05	0.0112	0.0181
8:35	T	0.0008		9:59	0.39	0.0932	0.0008	Mar. 5 <sup>10</sup>				4:15	0.05	0.0117	0.0209
8:36	T	0.0002	0.0177	10:00	0.22	0.0524	0.0020	p. m.				4:30	0.05	0.0120	0.0239
8:37	0	0		10:01	0.11	0.0265	0.0027	12:06	0	0	0	4:45	0.05	0.0115	0.0269
June 25 <sup>7</sup>				10:02	0.14	0.0332	0.0032	12:07	0	0		5:00	0.05	0.0112	0.0297
a. m.				10:03	0.16	0.0372	0.0038	1:00	T	0.0002		5:15	0.04	0.0097	0.0349
1:28	0	0	0	10:04	0.35	0.0825	0.0048	1:15	T	0.0002	0.0001	5:30	0.03	0.0080	0.0393
1:29	0.01	0.0023		10:05	0.31	0.0744	0.0061	1:30	T	0.0004	0.0002	5:45	0.02	0.0050	0.0425
1:30	0.01	0.0017		10:06	0.26	0.0629	0.0072	1:45	T	0.0005	0.0003	6:00	0.02	0.0044	0.0449
1:31	T	0.0011		10:07	0.21	0.0491	0.0081	2:00	T	0.0005	0.0005	6:15	0.01	0.0034	0.0469
1:32	T	0.0011		10:08	0.16	0.0379	0.0088	2:15	T	0.0006	0.0007	6:30	0.01	0.0025	0.0484
1:33	T	0.0011		10:09	0.09	0.0207	0.0093	2:30	T	0.0006	0.0009	6:45	0.01	0.0021	0.0496
1:34	T	0.0011		10:10	0.06	0.0145	0.0096	2:45	T	0.0008	0.0011	7:00	0.01	0.0017	0.0506
1:35	T	0.0011		10:11	0.04	0.0093	0.0098	3:00	0.01	0.0014	0.0017	7:15	0.01	0.0017	0.0514
1:36	T	0.0011		10:12	0.03	0.0082	0.0099	3:15	0.01	0.0016	0.0025	7:30	0.01	0.0014	0.0522
1:37	T	0.0011		10:13	0.03	0.0072	0.0100	3:30	0.01	0.0017	0.0033	7:45	0.01	0.0013	0.0529
1:38	T	0.0011		10:14	0.01	0.0029	0.0101	3:45	0.01	0.0016	0.0041	8:00	T	0.0011	0.0535
1:39	0.03	0.0072	0.0001	10:15	0.01	0.0029		4:00	0.01	0.0014	0.0049	8:15	T	0.0011	0.0559
1:40	0.12	0.0283	0.0004	10:16	0.01	0.0027		4:30	T	0.0011	0.0055	Mar. 17			
1:41	0.18	0.0440	0.0010	10:17	0.02	0.0056	0.0102	5:00	T	0.0011	0.0055	a. m.			
1:42	0.16	0.0387	0.0017	10:18	0.02	0.0056	0.0103	5:15	T	0.0011	0.0055	12:30	T	0.0011	0.0565
1:43	0.14	0.0343	0.0023	10:19	0.05	0.0125	0.0105	5:30	T	0.0011	0.0055	1:00	T	0.0010	0.0570
1:44	0.14	0.0338	0.0029	10:20	0.05	0.0131	0.0107	5:45	T	0.0011	0.0055	1:15	T	0.0008	0.0574
1:45	0.14	0.0336	0.0035	10:21	0.05	0.0112	0.0109	6:00	T	0.0011	0.0055	1:30	T	0.0008	0.0578
1:46	0.15	0.0355													



TABLE 33.—Run-off from watershed 6-H, April 20, 1939, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1940				1940				1940				1940			
Mar. 17				May 17				May 17				June 8			
p. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches
12:30	T	0.0008	0.0003	2:32	1.44	0.344	0.1525	5:00	0.11	0.0257	0.2316	8:58	0.18	0.0434	0.1690
1:00	0.01	.0013	.0008	:33	1.22	.291	.1578	:05	.11	.0269	.2338	:59	.15	.0360	.1697
:30	.01	.0017	.0016	:34	1.12	.267	.1624	:10	.11	.0257	.2360	9:00	.12	.0284	.1702
2:00	.01	.0021	.0026	:35	1.06	.253	.1667	:15	.10	.0245	.2381	:01	.10	.0238	.1706
:30	.01	.0023	.0037	:36	.98	.234	.1708	:20	.10	.0234	.2401	:02	.08	.0199	.1710
3:00	.01	.0021	.0048	:37	.90	.215	.1745	:25	.08	.0202	.2419	:03	.07	.0168	.1713
4:00	.01	.0021	.0068	:38	.84	.199	.1779	:30	.07	.0163	.2434	:04	.06	.0153	.1716
:30	.01	.0024	.0079	:39	.72	.173	.1810	:35	.05	.0127	.2446	:05	.06	.0137	.1719
5:00	.01	.0021	.0090	:40	.68	.162	.1838	:40	.04	.0096	.2455	:06	.05	.0110	.1721
6:00	.01	.0021	.0111	:41	.62	.149	.1864	:45	.03	.0068	.2462	:07	.04	.0095	.1723
7:00	.01	.0017	.0130	:42	.55	.131	.1887	:50	.02	.0044	.2467	:08	.03	.0081	.1724
8:00	.01	.0014	.0146	:43	.47	.111	.1907	:55	.01	.0034	.2470	:09	.03	.0067	.1725
9:00	.01	.0012	.0159	:44	.43	.102	.1925	6:00	.01	.0025	.2472	:10	.02	.0056	.1726
10:00	T	.0011	.0171	:45	.37	.0884	.1941	:05	.01	.0017	.2474	:15	.01	.0034	.1730
11:00	T	.0005	.0179	:46	.34	.0810	.1955	:10	T	.0010	.2475	:20	.01	.0021	.1732
12:00	T	.0002	.0183	:47	.30	.0727	.1968	:15	T	.0005	.2476	:30	.01	.0021	.1736
Mar. 18				:48	.27	.0655	.1980	:20	T	T		:35	.01	.0027	.1738
a. m.	T	T		:49	.26	.0620	.1991	:21	T	T		:40	.02	.0040	.1741
12:30	T	T		:50	.23	.0548	.2001	:22	T	T		:45	.01	.0034	.1744
9:00	T	T		:51	.22	.0515	.2010	:23	0	0	.2476	:50	.01	.0021	.1746
10:00	0	0	.0183	:52	.19	.0450	.2018	June 8 <sup>12</sup>				:55	.01	.0014	.1748
Mar. 18 <sup>10</sup>				:53	.16	.0393	.2025	p. m.				10:00	T	.0011	.1749
a. m.	0	0		:54	.15	.0367	.2031	8:15	0	0	0	:30	T	.0012	.1755
11:24	0	0		:55	.14	.0338	.2037	:16	T	.0005		:45	T	.0010	.1758
:25	T	.0008		:56	.12	.0286	.2042	:17	T	.0003		11:00	T	.0008	.1760
:30	T	.0011	.0001	:57	.11	.0265	.2047	:18	T	T		:30	T	.0005	.1763
12:00	T	.0011	.0007	:58	.10	.0243	.2051	:19	T	T		12:00	T	T	.1764
p. m.	T	.0011	.0019	:59	.09	.0222	.2055	:20	T	.0001		June 9			
1:00	T	.0009	.0024	3:00	.09	.0211	.2059	:21	T	.0005		a. m.	T	T	
:30	T	.0005	.0028	:01	.09	.0203	.2062	:22	.02	.0052	.0002	12:15	0	0	.1764
2:00	T	.0002	.0030	:02	.08	.0190	.2065	:23	.07	.0171	.0007	:20	0	0	
:30	T	.0002	.0030	:03	.08	.0181	.2068	:24	.20	.0465	.0007	Nov. 8 <sup>13</sup>			
3:00	T	.0002	.0030	:04	.07	.0173	.2071	:25	.47	.112	.0020	p. m.	0	0	0
:30	T	.0002	.0030	:05	.07	.0161	.2074	:26	.84	.199	.0046	10:39	0	0	0
4:00	0	0		:06	.06	.0152	.2077	:27	1.31	.312	.0111	:40	T	.0005	
May 17 <sup>11</sup>				:07	.06	.0145	.2079	:28	1.60	.381	.0169	:45	T	.0008	0
a. m.	0	0	.0030	:08	.06	.0137	.2081	:29	1.72	.410	.0235	11:00	T	.0008	.0002
2:10	0	0	0	:09	.05	.0128	.2083	:30	1.85	.441	.0306	:30	T	.0011	.0007
:11	.01	.0019	.0001	:10	.05	.0112	.2085	:31	2.00	.477	.0382	12:00	T	.0011	.0011
:12	.02	.0043	.0001	:11	.04	.0103	.2087	:32	2.08	.496	.0463		T	.0005	.0002
:13	.17	.0400	.0005	:12	.04	.0095	.2089	:33	2.16	.515	.0556	:30	T	.0011	.0007
:14	.52	.125	.0019	:13	.04	.0090	.2091	:34	2.15	.512	.0642		T	.0005	.0011
:15	1.31	.312	.0055	:14	.04	.0090	.2093	:35	1.95	.465	.0723	Nov. 9			
:16	2.05	.489	.0122	:15	.03	.0078	.2094	:36	1.85	.441	.0799	a. m.	T	.0005	.0012
:17	2.27	.541	.0208	:16	.03	.0074	.2095	:37	1.80	.429	.0871	12:15	T	.0011	.0014
:18	2.30	.548	.0299	:17	.03	.0073	.2096	:38	1.75	.417	.0941	:30	T	.0011	.0017
:19	2.52	.601	.0395	:18	.03	.0069	.2097	:39	1.76	.419	.1010	:45	T	.0011	.0019
:20	2.57	.612	.0496	:19	.03	.0062	.2098	:40	1.78	.424	.1080	1:00	T	.0008	.0021
:21	2.53	.603	.0597	:20	.02	.0058	.2099	:41	1.75	.417	.1150	:15	T	.0011	.0024
:22	2.50	.596	.0697	:21	.02	.0056	.2100	:42	1.69	.403	.1217	:30	T	.0011	.0026
:23	2.44	.581	.0795	:22	.02	.0056	.2101	:43	1.62	.386	.1283	2:00	T	.0008	.0030
:24	2.38	.567	.0891	:23	.02	.0050	.2102	:44	1.50	.357	.1345	:30	T	.0005	.0033
:25	2.27	.541	.0983	:24	.02	.0044	.2103	:45	1.37	.326	.1402	3:00	T	.0008	.0048
:26	2.22	.529	.1072	:25	.02	.0039	.2104	:46	1.19	.284	.1453	6:00	T	.0005	.0052
:27	2.11	.503	.1158	:26	.02	.0039	.2108	:47	1.03	.245	.1497	7:00	T	.0004	.0056
:28	2.02	.481	.1240	:27	.02	.0044	.2117	:48	.87	.207	.1535	8:00	T	.0005	.0066
:29	1.97	.469	.1319	:28	.03	.0069	.2121	:49	.67	.159	.1565	10:00	T	.0011	.0074
:30	1.81	.481	.1394	:29	.05	.0113	.2126	:50	.51	.122	.1588	12:00	T	.0005	.0082
:31	1.67	.398	.1463	:30	.06	.0146	.2134	:51	.42	.101	.1607	p. m.	T	T	.0084
				:31	.07	.0164	.2145	:52	.39	.0939	.1623	2:00	0	0	.0084
					.07	.0173	.2172	:53	.36	.0851	.1638				
					.08	.0183	.2187	:54	.32	.0760	.1651				
					.08	.0183	.2263	:55	.26	.0627	.1663				
					.08	.0193	.2279	:56	.23	.0541	.1673				
					.09	.0224	.2296	:57	.20	.0481	.1682				

<sup>1</sup> Total rainfall for storm of May 20, 0.86 inch. Soil dry before rain. Wheat and oats on the contour. Wheat 8 inches high, thin. Oats 4 inches high.

<sup>2</sup> Total rainfall for storm of May 22, 0.39 inch. Soil moist and firm before rain.

<sup>3</sup> Total rainfall for storm of June 12, 0.37 inch. Soil moist and firm before rain. Oats 8 inches high. Wheat 10 inches.

<sup>4</sup> Total rainfall for storm of June 15, 0.70 inch. Soil moist from rain of June 12. Oats 8 inches high. Wheat 10 inches.

<sup>5</sup> Total rainfall for storm of June 20, 1.49 inches. Soil moist before rain. Oats and wheat 10 inches high. No gullies formed except one in the center of the draw.

<sup>6</sup> Total rainfall for storm of June 21, 0.24 inch. Soil wet and plastic before rain.

<sup>7</sup> Total rainfall for storm of June 25, 0.61 inch. Soil moist and firm. Grain harvested. Stubble remained. No gullies or washing.

<sup>8</sup> Total rainfall for storm of July 1, 0.46 inch. Soil dry on surface before rain. Stubble remained.

<sup>9</sup> Total rainfall for storm of Aug. 11, 0.77 inch. Soil dry before rain. Area plowed in straight lines with moldboard plow July 22 and 24. Small amount of erosion.

<sup>10</sup> Run-off from melting snow.

<sup>11</sup> Total rainfall for storm of May 17, 1.56 inches. Soil moist before rain. Wheat 8 inches high, very poor. Many Russian thistles in field.

<sup>12</sup> Total rainfall for storm of June 8, 1.08 inches. Soil dry before rain. Wheat in lower part of watershed 16 inches high. Remainder very short and poor. Russian thistles taking over this area.

<sup>13</sup> Total rainfall for storm of Nov. 8-9, 0.65 inch. Soil dry before rain. Area had been tilled with duck-foot cultivator, Aug. 30. Debris remained on surface.



TABLE 34.—Run-off from watershed 7-H, April 20, 1939, to December 31, 1940

LOCATION: Latitude 40°16'06'', longitude 98°22'26''.

## PHYSICAL CHARACTERISTICS:

Drainage area.—4.15 acres.

Length of principal watercourse.—610 feet.

Topography.—Undulating, well drained.

Slope.—Average slope is 4.6 percent. 11 percent of the watershed has a slope of less than 2 percent; 42 percent, 2 to 5 percent; 41 percent, 5 to 8 percent; 4 percent, 8 to 12 percent; and 2 percent has a slope of 12 percent or more.

Erosion condition.—No depressions or gullies. 30 percent of the area has lost less than 25 percent of the topsoil. 70 percent of the area has lost 25 to 50 percent of the topsoil.

Soil.—Hastings silt loam, 62 percent; Holdrege silty clay loam, 38 percent. The Holdrege silty clay loam occurs in the lower and steeper parts of the watershed.

## LAND USE AND VEGETAL COVER:

Land use distribution.—Cultivated land, 100 percent.

Vegetal cover and soil condition.—The upper half of this watershed was planted to wheat in the fall of 1938 and it was allowed to remain until maturity. The crop on the remainder of the watershed was oats planted in straight rows. Winter wheat was planted on the contour in the fall of 1939. Only that in the lower part of the watershed sprouted. The remainder of the area lay idle during 1940. Cultural operations in 1939 were as follows:

March 22, lower part of watershed double-disked east and west in straight lines.

March 31, lower part of watershed seeded to oats east and west.

June 24, oats and wheat harvested. Oats were 10 inches high, wheat 12 inches high, 4 inches of stubble

remained. Oats yield 5.39 bushels an acre; wheat yield 3.15 bushels an acre.

July 20–21, plowed on the contour with moldboard plow.

August 21, double-disked on the contour.

August 22, harrowed on the contour with peg-tooth harrow.

September 20, seeded to wheat on the contour. The 1939 crop damaged severely by drought and grasshoppers.

Cultural operations in 1940 were as follows:

July 5, wheat in lower part of the watershed harvested.

Yield 2.39 bushels an acre when averaged for the entire watershed.

July 25, tilled on the contour about 6 inches deep with wide-shovel duck-foot cultivator in order to control weeds.

August 31, tilled on the contour about 6 inches deep with wide-shovel duck-foot cultivator in order to control weeds.

## MEASUREMENTS:

Precipitation.—Rainfall was measured at recording rain gage B36R and nonrecording rain gage B34 (fig. 2). Snowfall was measured by weighing and recording rain and snow gages and by cooperative observers' measurements. Snow inventory on the watershed was obtained by inspection.

Run-off.—Run-off was measured by an H flume 3 feet deep.

Changes in instrumentation during period.—B36R was installed April 20, 1939, and B34, April 21.

## SUMMARY OF RECORDS:

Run-off.—Annual run-off amount 1940, 0.397 inch. Maximum rate of run-off 1939, 1.61 inches per hour, June 20; maximum rate 1940, 0.83 inch per hour, May 17.

Date and time	Instantaneous rate of run-off			Accumulated run-off	Date and time	Instantaneous rate of run-off			Accumulated run-off	Date and time	Instantaneous rate of run-off			Accumulated run-off	Date and time	Instantaneous rate of run-off			Accumulated run-off
	Second-foot	Inches per hour	Inches			Second-foot	Inches per hour	Inches			Second-foot	Inches per hour	Inches			Second-foot	Inches per hour	Inches	
<b>1939</b>																			
<b>May 20<sup>1</sup></b>					<b>June 12</b>					<b>June 15</b>					<b>June 20</b>				
a. m.					p. m.					a. m.					p. m.				
5:44	0	0	0	0	9:35	0.26	0.0631	0.0137	0.0137	3:48	0.69	0.165	0.1854	0.1854	1:34	4.28	1.02	0.3706	0.3706
45	1.26	.302	.0025	.0025	36	.26	.0631	.0148	.0148	49	.58	.139	.1879	.1879	35	3.74	.894	.3866	.3866
46	.96	.230	.0069	.0069	37	.13	.0308	.0156	.0156	50	.55	.131	.1901	.1901	36	3.70	.884	.4014	.4014
47	.98	.234	.0108	.0108	38	.12	.0299	.0161	.0161	51	.52	.124	.1922	.1922	37	3.55	.848	.4158	.4158
48	.97	.232	.0147	.0147	39	.11	.0263	.0166	.0166	52	.30	.0717	.1938	.1938	38	3.12	.746	.4291	.4291
49	.88	.212	.0184	.0184	40	.08	.0184	.0170	.0170	53	.08	.0186	.1946	.1946	39	3.00	.717	.4413	.4413
50	.82	.196	.0218	.0218	41	.04	.0100	.0172	.0172	54	.05	.0127	.1949	.1949	40	2.99	.714	.4532	.4532
51	.82	.195	.0251	.0251	42	.04	.0093	.0174	.0174	55	.12	.0294	.1953	.1953	41	2.95	.705	.4650	.4650
52	.62	.148	.0280	.0280	43	.04	.0100	.0176	.0176	56	.16	.0394	.1959	.1959	42	2.54	.607	.4759	.4759
53	.62	.148	.0305	.0305	44	.03	.0081	.0178	.0178	57	.13	.0318	.1965	.1965	43	2.30	.550	.4855	.4855
54	.44	.104	.0326	.0326	45	.04	.0096	.0179	.0179	58	.08	.0189	.1969	.1969	44	2.21	.528	.4945	.4945
55	.36	.0867	.0342	.0342	46	.04	.0103	.0181	.0181	59	.01	.0019	.1971	.1971	45	2.07	.495	.5030	.5030
56	.34	.0805	.0356	.0356	47	.02	.0056	.0182	.0182	4:00	.02	.0036	.1971	.1971	46	2.00	.478	.5111	.5111
57	.32	.0753	.0369	.0369	48	0	0	.0182	.0182	01	.03	.0076	.1972	.1972	47	1.76	.421	.5186	.5186
58	.21	.0509	.0380	.0380						02	.02	.0048	.1973	.1973	48	1.49	.356	.5251	.5251
59	.11	.0268	.0386	.0386						03	.03	.0069	.1974	.1974	49	1.35	.323	.5308	.5308
6:00	.06	.0155	.0390	.0390	<b>June 15<sup>3</sup></b>					04	T	.0012	.1975	.1975	50	1.29	.308	.5361	.5361
01	.10	.0239	.0393	.0393						05	0	0	.1975	.1975	51	1.19	.284	.5410	.5410
02	.07	.0158	.0396	.0396	a. m.										52	1.02	.244	.5454	.5454
03	.06	.0153	.0399	.0399	3:26	0	0	0	0	<b>June 20<sup>1</sup></b>					53	.87	.208	.5492	.5492
04	.07	.0172	.0402	.0402	27	1.24	.297	.0025	.0025						54	.77	.184	.5525	.5525
05	.06	.0143	.0405	.0405	28	1.14	.273	.0073	.0073	1:15	0	0	0	0	55	.69	.165	.5554	.5554
06	.04	.0108	.0407	.0407	29	1.20	.288	.0120	.0120	16	2.42	.578	.0048	.0048	56	.57	.136	.5579	.5579
07	.01	.0033	.0408	.0408	30	1.27	.304	.0169	.0169	17	2.01	.480	.0136	.0136	57	.48	.115	.5600	.5600
08	.02	.0045	.0409	.0409	31	1.53	.366	.0225	.0225	18	2.76	.658	.0231	.0231	58	.39	.0932	.5617	.5617
09	.02	.0045	.0409	.0409	32	2.23	.532	.0300	.0300	19	3.31	.791	.0352	.0352	59	.30	.0722	.5631	.5631
10	.04	.0084	.0409	.0409	33	2.86	.683	.0401	.0401	20	4.17	.996	.0501	.0501	2:00	.28	.0674	.5643	.5643
11	T	.0005	.0409	.0409	34	3.02	.722	.0518	.0518	21	5.69	1.36	.0697	.0697	01	.26	.0614	.5654	.5654
12	0	0	.0409	.0409	35	3.11	.743	.0640	.0640	22	6.72	1.61	.0944	.0944	02	.20	.0468	.5663	.5663
<b>June 12<sup>2</sup></b>					36	3.47	.829	.0771	.0771	23	6.63	1.58	.1210	.1210	03	.16	.0385	.5670	.5670
p. m.					37	3.74	.894	.0915	.0915	24	6.63	1.51	.1468	.1468	04	.14	.0334	.5676	.5676
9:27	0	0	0	0	38	3.45	.824	.1058	.1058	25	6.19	1.48	.1717	.1717	05	.12	.0296	.5681	.5681
28	.89	.212	.0018	.0018	39	3.35	.800	.1193	.1193	26	6.10	1.46	.1962	.1962	06	.11	.0268	.5686	.5686
29	.51	.121	.0046	.0046	40	2.74	.655	.1439	.1439	27	6.14	1.47	.2206	.2206	07	.10	.0248	.5690	.5690
30	.48	.115	.0066	.0066	41	2.23	.533	.1538	.1538	28	6.18	1.48	.2451	.2451	08	.07	.0172	.5694	.5694
31	.44	.104	.0084	.0084	42	1.96	.468	.1621	.1621	29	5.35	1.28	.2681	.2681	09	.03	.0074	.5696	.5696
32	.42	.100	.0101	.0101	43	1.72	.411	.1694	.1694	30	5.35	1.28	.2894	.2894	10	.01	.0033	.5697	.5697
33	.26	.0631	.0115	.0115	44	1.19	.284	.1752	.1752	31	5.35	1.28	.3107	.3107	11	T	.0012		
34	.26	.0631	.0126	.0126	45	.81	.194	.1792	.1792	32	5.35	1.28	.3320	.3320	12	0	.0005		
					46	.80	.191	.1824	.1824	33	4.87	1.16	.3524	.3524	13	0		.5697	.5697

See footnotes at end of table, p. 80.



TABLE 34.—Run-off from watershed 7—H, April 20, 1939, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off					
1939							1939							1940						
June 20							July 1							May 17						
p. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches					
4:27	0	0	0	5:01	0.12	0.0292	0.0024	2:23	3.09	0.738	0.0638	5:23	0.10	0.0239	0.2934					
28	.26	.0610	.0005	02	.08	.0194	.0028	24	3.30	.788	.0765	24	.09	.0218	.2938					
29	.18	.0433	.0014	03	.05	.0128	.0031	25	3.46	.827	.0900	25	.09	.0217	.2942					
30	.17	.0408	.0021	04	.05	.0128	.0033	26	3.38	.808	.1036	30	.08	.0191	.2959					
31	.13	.0315	.0027	05	.05	.0128	.0035	27	3.15	.752	.1166	35	.07	.0171	.2974					
32	.15	.0348	.0033	06	.05	.0128	.0037	28	3.05	.729	.1289	40	.06	.0134	.2987					
33	.12	.0299	.0038	07	.05	.0128	.0039	29	2.94	.702	.1408	45	.04	.0102	.2997					
34	.13	.0322	.0043	08	.03	.0071	.0041	30	2.82	.674	.1523	50	.03	.0073	.3004					
35	.14	.0341	.0049	09	.03	.0065	.0042	31	2.66	.636	.1632	55	.02	.0048	.3009					
36	.22	.0531	.0056	10	.01	.0019	.0043	32	2.40	.573	.1733	6:00	.02	.0038	.3013					
37	.33	.0781	.0067	11	0	0	.0043	33	2.17	.518	.1824	05	.01	.0027	.3016					
38	.39	.0927	.0081					34	1.90	.454	.1905	10	.01	.0020	.3018					
39	.47	.112	.0098	1940							35	1.64	.392	.1975	15	.01	.0013	.3019		
40	.54	.130	.0118	Mar. 5 <sup>7</sup>							36	1.46	.349	.2037	20	T	.0010	.3020		
41	.60	.144	.0141	p. m.							37	1.30	.311	.2092	25	T	.0007	.3021		
42	.65	.156	.0166	1:08	0	0	0	38	1.17	.280	.2141	30	T	.0005	.3021					
43	.72	.173	.0193	09	.01	.0017	0	39	1.08	.258	.2186	35	T	.0005	.3022					
44	.73	.175	.0222	10	.01	.0032	0	40	.95	.226	.2226	7:00	T	.0004	.3023					
45	.65	.156	.0250	15	.02	.0044	.0003	41	.87	.207	.2262	30	T	.0004	.3025					
46	.67	.161	.0276	20	.03	.0069	.0008	42	.77	.185	.2295	35	T	.0006						
47	.72	.171	.0304	25	.04	.0090	.0015	43	.67	.160	.2324	40	.01	.0012	.3026					
48	.68	.162	.0332	30	.04	.0097	.0023	44	.61	.145	.2349	45	.01	.0017	.3027					
49	.71	.170	.0360	35	.04	.0097	.0031	45	.54	.128	.2372	8:00	T	.0007	.3030					
50	.60	.142	.0386	40	.04	.0105	.0039	46	.47	.113	.2390	15	T	.0005	.3032					
51	.60	.142	.0410	45	.05	.0112	.0048	47	.42	.100	.2410	45	T	.0005	.3034					
52	.49	.118	.0432	50	.05	.0112	.0057	48	.38	.0920	.2426	9:00	T	.0003	.3035					
53	.51	.123	.0452	55	.04	.0097	.0066	49	.35	.0829	.2441	15	T	.0002						
54	.42	.100	.0471	2:00	.04	.0090	.0074	50	.31	.0741	.2454	30	T	.0001						
55	.40	.0949	.0487	05	.04	.0090	.0082	51	.28	.0666	.2466	45	T	.0001						
56	.38	.0920	.0503	10	.04	.0086	.0089	52	.25	.0593	.2476	10:00	0	0	.3035					
57	.30	.0726	.0517	15	.04	.0086	.0110	53	.22	.0518	.2485									
58	.24	.0569	.0528	20	.04	.0084	.0117	54	.21	.0494	.2493	June 8 <sup>8</sup>								
59	.22	.0516	.0537	25	.04	.0083	.0124	55	.18	.0437	.2501	p. m.								
5:00	.18	.0440	.0545	30	.03	.0083	.0138	56	.16	.0378	.2508	8:09	0	0	0					
01	.19	.0444	.0552	35	.03	.0076	.0158	57	.14	.0325	.2514	10	.01	.0020						
02	.17	.0406	.0559	40	.03	.0069	.0176	58	.12	.0280	.2519	11	.01	.0013						
03	.15	.0354	.0565	45	.03	.0062	.0192	59	.11	.0265	.2524	12	.01	.0015						
04	.14	.0323	.0571	50	.02	.0056	.0207	01	.11	.0254	.2532	13	.01	.0022						
05	.10	.0248	.0576	55	.02	.0044	.0219	02	.10	.0241	.2536	14	.01	.0016						
06	.07	.0172	.0580	6:00	.02	.0039	.0240	03	.10	.0232	.2540	15	T	.0010						
07	.07	.0167	.0583	7:00	.01	.0021	.0255	04	.09	.0216	.2544	16	T	.0007						
08	.06	.0150	.0586		.01	.0017	.0265	05	.08	.0193	.2547	17	T	.0004						
09	.05	.0119	.0588		T	.0011	.0272	06	.07	.0177	.2550	18	T	.0006						
10	.06	.0146	.0590		T	T	.0274	07	.07	.0169	.2553	19	T	.0011						
11	.07	.0174	.0593		0	0	.0274	08	.07	.0160	.2556	20	.01	.0015						
12	.05	.0129	.0596					09	.06	.0149	.2559	21	.01	.0018						
13	.03	.0076	.0598					10	.06	.0142	.2561	22	.01	.0017						
14	.02	.0052	.0599					11	.06	.0146	.2563	23	.01	.0014						
15	.02	.0053	.0600					12	.06	.0137	.2565	24	.01	.0016						
16	.02	.0057	.0601					13	.05	.0127	.2567	25	.01	.0014						
17	.02	.0043	.0602					14	.05	.0116	.2569	26	.04	.0092	.0001					
18	.01	.0026	.0603					15	.05	.0109	.2571	27	.10	.0241	.0004					
19	T	.0006						20	.03	.0080	.2579	28	.14	.0327	.0009					
20	0	0	.0603					25	.03	.0067	.2585	29	.15	.0363	.0015					
June 21 <sup>8</sup>								30	.02	.0055	.2590	30	.16	.0392	.0021					
p. m.								35	.02	.0053	.2594	31	.19	.0461	.0028					
7:55	0	0	0					40	.02	.0050	.2598	32	.24	.0568	.0037					
56	.31	.0742	.0006					50	.02	.0050	.2606	33	.28	.0664	.0047					
57	.15	.0362	.0015					55	.02	.0053	.2610	34	.30	.0707	.0058					
58	.12	.0291	.0020					4:00	.04	.0103	.2616	35	.30	.0726	.0070					
59	.10	.0241	.0024					05	.07	.0167	.2627	36	.34	.0800	.0083					
8:00	.08	.0184	.0028					10	.07	.0184	.2642	37	.41	.0979	.0098					
01	.07	.0165	.0031					15	.08	.0194	.2658	38	.44	.106	.0115					
02	.09	.0219	.0034					30	.08	.0193	.2706	39	.50	.120	.0134					
03	.10	.0229	.0038					45	.08	.0183	.2753	40	.51	.123	.0154					
04	.08	.0198	.0042					50	.09	.0203	.2769	41	.54	.129	.0175					
05	.08	.0186	.0045					55	.10	.0251	.2787	42	.57	.137	.0197					
06	.10	.0234	.0049					5:00	.14	.0322	.2811	43	.58	.138	.0220					
07	.07	.0164	.0052					05	.14	.0325	.2838	44	.60	.142	.0243					
08	.04	.0103	.0054					06	.15	.0356	.2844	45	.62	.148	.0267					
09	.04	.0096	.0056					07	.15	.0366	.2850	46	.60	.144	.0291					
10	.04	.0086	.0058					08	.17	.0401	.2856	47	.59	.141	.0315					
11	.03	.0063	.0059					09	.18	.0430	.2863	48	.57	.137	.0338					
12	.02	.0038	.0060					10	.16	.0375	.2870	49	.54	.128	.0360					
13	.01	.0014						11	.15	.0368	.2876	50	.51	.122	.0381					
14	.01	.0013						12	.15	.0354	.2882	51	.46	.111	.0400					
15	0	0	.0060					13	.14	.0339	.2888	52	.42	.101	.0418					
July 1 <sup>8</sup>								14	.14	.0330	.2894	53	.38	.0920	.0434					
a. m.								15	.13	.0318	.2899	54	.35	.0834	.0449					
4:58	0	0	0					16	.13	.0311	.2904	55	.32	.0762	.0462					
59	.38	.0898	.0007					17	.12	.0287	.2909	56	.28	.0662	.0474					
5:00	.18	.0422	.0018					18	.11	.0265	.2914	57	.25	.0597	.0484					
								19	.11	.0270	.2918	58	.22	.0535	.0493					
								20	.11	.0270	.2922	59	.20	.0485	.0503					
								21	.11	.0268	.2926	9:00	.16	.0394	.0501					
								22	.11	.0253	.2930	01	.14	.0322	.0514					

See footnotes at end of table, p. 80.



TABLE 34.—Run-off from watershed 7-H, April 20, 1939, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1940				1940				1940				1940			
June 8				June 8				June 8				Nov. 25			
p. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches
9:02-----	0.13	0.0315	0.0519	9:16-----	0.05	0.0108	0.0564	10:30-----	T	0.0002	0.0597	3:15-----	T	0.0005	0.0003
:03-----	.13	.0315	.0524	:17-----	.04	.0093	.0566	:45-----	T	T		4:00-----	T	.0005	.0006
:04-----	.12	.0287	.0529	:18-----	.04	.0090	.0568	11:00-----	T	T		:15-----	T	.0002	.0007
:05-----	.11	.0258	.0534	:19-----	.04	.0088	.0569	:15-----	0	0	.0597	:45-----	T	.0002	.0008
:06-----	.09	.0222	.0538	:20-----	.03	.0080	.0570	5:00-----				5:00-----	T	.0008	.0009
:07-----	.09	.0206	.0542	:25-----	.03	.0062	.0576	Nov. 25 10				:30-----	T	.0011	.0014
:08-----	.08	.0197	.0545	:30-----	.02	.0050	.0581	p. m.				6:00-----	.01	.0017	.0021
:09-----	.07	.0177	.0548	:35-----	.02	.0039	.0585	2:46-----	0	0	0	:30-----	.01	.0014	.0029
:10-----	.07	.0169	.0551	:40-----	.01	.0029	.0588	:47-----	T	T		7:00-----	.01	.0021	.0038
:11-----	.07	.0156	.0554	:45-----	.01	.0021	.0590	:50-----	T	T		:30-----	.01	.0021	.0048
:12-----	.06	.0140	.0556	:50-----	.01	.0014	.0592	:55-----	T	.0008		:45-----	.01	.0014	.0052
:13-----	.06	.0137	.0558	:55-----	T	.0011	.0593	3:00-----	T	.0011	.0001	8:00-----	T	.0002	.0054
:14-----	.05	.0124	.0560	10:00-----	T	.0008	.0594					:05-----	T	T	
:15-----	.05	.0112	.0562	:15-----	T	.0005	.0596					:10-----	0	0	.0054

<sup>1</sup> Total rainfall for storm of May 20, 0.86 inch. Soil dry before rain. Wheat and oats planted in straight lines. Wheat 8 inches high, thin. Oats 4 inches high.

<sup>2</sup> Total rainfall for storm of June 12, 0.37 inch. Soil moist and firm before rain. Oats 8 inches high. Wheat 10 inches high.

<sup>3</sup> Total rainfall for storms of June 15, 0.70 inch. Soil moist from rain of June 12. Oats 8 inches high; wheat 10 inches high.

<sup>4</sup> Total rainfall for storm of June 20, 1.49 inches. Soil moist. Oats and wheat 10 inches high. No gullying.

<sup>5</sup> Total rainfall for storm of June 21, 0.24 inch. Soil wet and plastic before rain.

<sup>6</sup> Total rainfall for storm of July 1, 0.46 inch. Soil dry on surface before rain. Grain harvested, stubble remained.

<sup>7</sup> Run-off from melting snow.

<sup>8</sup> Total rainfall for storm of May 17, 1.56 inches. Soil moist before rain. Wheat 8 inches high, very poor. Many Russian thistles in field.

<sup>9</sup> Total rainfall for storm of June 8, 1.08 inches. Soil dry before rain. Wheat in lower part of watershed, 14 inches high. Upper part very short and poor.

<sup>10</sup> Total rainfall for storm of Nov. 25-26, 0.40 inch. Soil moist before rain. Area tilled with duck-foot cultivator, Aug. 31 to control weeds. Debris remained on surface.

TABLE 35.—Run-off from watershed 8-H, March 27, 1939, to December 31, 1940

LOCATION: Latitude 40°16'06", longitude 98°22'17".

#### PHYSICAL CHARACTERISTICS:

Drainage area.—3.93 acres.

Length of principal watershed.—620 feet.

Topography.—Undulating, well drained.

Slope.—Average slope is 3.0 percent. 16 percent of the watershed has a slope of less than 2 percent; 74 percent, 2 to 5 percent; and 10 percent, 5 to 8 percent.

Erosion condition.—No depressions or gullies. 93 percent of the area has lost 25 to 50 percent of the topsoil. 7 percent of the area has lost 50 to 75 percent of the topsoil.

Soil.—Hastings silt loam, 93 percent; Hastings silty clay loam, 7 percent. The Hastings silty clay loam is at the extreme upper edge of the area.

#### LAND USE AND VEGETAL COVER:

Land use distribution.—Cultivated land, 100 percent.

Vegetal cover and soil condition.—This watershed was planted to wheat in the fall of 1938. The crop for 1939 was corn planted in straight rows; for 1940, corn planted on the contour. Cultural operations in 1939 were as follows:

April 24, single-disked to kill wheat.

May 12, planted corn with lister, in straight rows.

June 3, cultivated corn with go-dig cultivator.

June 19, cultivated corn with go-dig cultivator.

June 29, cultivated corn with shovel cultivator.

The corn was a complete failure, both for forage and grain.

It was not harvested but the stalks, which at maturity were about 42 inches high, were allowed to remain on the field.

Cultural operations in 1940 were as follows:

April 16, single-disked on the contour.

May 13, corn planted on the contour with lister in rows 42 inches apart.

June 6, corn cultivated with go-dig cultivator.

June 19, corn cultivated with go-dig cultivator.

The corn was a complete failure, both for forage and grain.

A sample yielded only 925 pounds of forage an acre and 24 pounds of grain an acre. The stalks at maturity were 3½ feet high. They were left standing in the field.

#### MEASUREMENTS:

Precipitation.—Rainfall was measured at recording rain gage B36R after April 20, 1939, and at C29R before (fig. 2). Snowfall was measured by weighing and recording rain and snow gages and by cooperative observers' measurements. Snow inventory on the watershed was obtained by inspection.

Run-off.—Run-off was measured by an H flume 3 feet deep.

Changes in instrumentation during period.—B36R installed April 20, 1939.

#### SUMMARY OF RECORDS:

Run-off.—Annual run-off amount 1940, 0.035 inch. Maximum rate of run-off 1939, 2.67 inches per hour, August 11; maximum rate 1940, 0.013 inch per hour, February 11.

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1939				1939				1939				1939			
Apr. 4				Apr. 4				Apr. 4				Apr. 4			
p. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches
12:39-----	0	0	0	12:48-----	0.09	0.0233	0.0045	12:57-----	0.03	0.0071	0.0066	1:06-----	0.01	0.0016	
:40-----	.11	.0270	.0002	:49-----	.08	.0205	.0049	:58-----	.02	.0059	.0067	:07-----	.01	.0013	
:41-----	.14	.0344	.0007	:50-----	.07	.0185	.0052	:59-----	.02	.0042	.0068	:08-----	T	.0010	
:42-----	.17	.0424	.0013	:51-----	.06	.0161	.0055	1:00-----	.01	.0035	.0069	:09-----	T	.0007	
:43-----	.16	.0394	.0020	:52-----	.06	.0139	.0058	:01-----	.01	.0036	.0070	:10-----	T	.0005	
:44-----	.14	.0346	.0026	:53-----	.05	.0118	.0060	:02-----	.01	.0032	.0071	:11-----	T	.0002	
:45-----	.13	.0318	.0031	:54-----	.04	.0102	.0062	:03-----	.01	.0027		:12-----	0	0	.0073
:46-----	.12	.0290	.0036	:55-----	.04	.0088	.0064	:04-----	.01	.0024					
:47-----	.10	.0265	.0041	:56-----	.03	.0080	.0065	:05-----	.01	.0020					

See footnotes at end of table p. 82.



TABLE 35.—Run-off from watershed 8-H, March 27, 1939, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1939				1939				1939				1939			
Apr. 4	Second-foot	Inches per hour	Inches	May 20	Second-foot	Inches per hour	Inches	June 15	Second-foot	Inches per hour	Inches	June 20	Second-foot	Inches per hour	Inches
2:34 p. m.	0	0	0	a. m.	0	0.0012	0	a. m.	4.05	1.02	0.1899	2:01 p. m.	0.08	0.0195	0.4938
.35 .02	.0062	.0001	.01	.01 T	.0009	.0001	.01 T	.37 3.47	.875	.2057	.02	.06	.0143	.4941	
.36 .03	.0078	.0002	.02	.02 T	.0006	.0002	.02 T	.38 2.96	.747	.2192	.03	.04	.0102	.4943	
.37 .04	.0101	.0004	.03	.03 T	.0003	.0003	.03 T	.39 2.35	.593	.2303	.04	.04	.0102	.4945	
.38 .06	.0144	.0006	.04	.04 T	.0001	.0001	.04 T	.40 1.73	.436	.2389	.05	.03	.0077	.4947	
.39 .06	.0161	.0009	.05	.05 0	0	0	.05 0	.41 1.80	.454	.2463	.06	.02	.0047	.4948	
.40 .06	.0162	.0012						.42 1.78	.449	.2538	.07	.01	.0034	.4949	
.41 .06	.0154	.0015		May 22 3				.43 1.53	.386	.2608	.08	T	.0011		
.42 .06	.0154	.0018		a. m.				.44 1.17	.295	.2665	.09	T	.0010		
.43 .06	.0154	.0021		6:13	0	0	0	.45 .93	.236	.2708	.10	T	.0002		
.44 .06	.0154	.0024		.14	.03	.0077	.0001	.46 .87	.220	.2746	.11	0	0	.4949	
.45 .06	.0156	.0027		.15	.03	.0085	.0002	.47 .92	.233	.2784					
.46 .07	.0166	.0030		.16	.03	.0091	.0003	.48 .91	.230	.2823					
.47 .07	.0173	.0033		.17	.05	.0134	.0005	.49 .83	.209	.2860	4:26	0	0	0	
.48 .07	.0176	.0036		.18	.08	.0196	.0008	.50 .76	.190	.2893	.27	.11	.0278	.0002	
.49 .07	.0173	.0039		.19	.08	.0190	.0011	.51 .67	.169	.2923	.28	.24	.0613	.0009	
.50 .07	.0173	.0042		.20	.08	.0208	.0014	.52 .62	.156	.2950	.29	.54	.135	.0025	
.51 .07	.0173	.0045		.21	.09	.0226	.0018	.53 .54	.135	.2974	.30	.90	.227	.0055	
.52 .07	.0173	.0048		.22	.09	.0232	.0022	.54 .45	.114	.2995	.31	1.16	.293	.0098	
.53 .07	.0173	.0051		.23	.10	.0243	.0026	.55 .37	.0930	.3012	.32	1.23	.310	.0148	
.54 .07	.0173	.0054		.24	.09	.0237	.0030	.56 .31	.0782	.3026	.33	1.10	.278	.0197	
.55 .07	.0173	.0057		.25	.09	.0234	.0034	.57 .24	.0603	.3038	.34	1.02	.257	.0242	
.56 .07	.0173	.0060		.26	.09	.0221	.0038	.58 .16	.0391	.3046	.35	.98	.246	.0284	
.57 .07	.0179	.0063		.27	.09	.0212	.0042	.59 .14	.0341	.3052	.36	.90	.226	.0323	
.58 .08	.0198	.0066		.28	.08	.0204	.0045	.60 .12	.0295	.3057	.37	.86	.216	.0360	
.59 .08	.0211	.0069		.29	.08	.0195	.0048	.61 .10	.0247	.3061	.38	.90	.227	.0397	
3:00 .09	.0224	.0072		.30	.07	.0183	.0051	.62 .08	.0212	.3065	.39	1.09	.275	.0439	
.01 .09	.0226	.0076		.31	.06	.0164	.0054	.63 .07	.0186	.3068	.40	1.30	.328	.0489	
.02 .09	.0239	.0080		.32	.06	.0139	.0057	.64 .06	.0156	.3071	.41	1.55	.391	.0549	
.03 .10	.0249	.0084		.33	.05	.0133	.0059	.65 .05	.0132	.3073	.42	1.62	.409	.0616	
.04 .10	.0257	.0088		.34	.05	.0119	.0061	.66 .04	.0108	.3075	.43	1.58	.399	.0653	
.05 .11	.0267	.0092		.35	.04	.0105	.0063	.67 .03	.0084	.3077	.44	1.60	.404	.0750	
.06 .11	.0285	.0097		.36	.04	.0093	.0065	.68 .03	.0068	.3078	.45	1.42	.358	.0814	
.07 .12	.0295	.0102		.37	.03	.0080	.0066	.69 .02	.0056	.3079	.46	1.16	.293	.0868	
.08 .12	.0308	.0107		.38	.03	.0069	.0067	.70 .02	.0046	.3080	.47	1.11	.280	.0916	
.09 .12	.0315	.0112		.39	.02	.0058	.0068	.71 .01	.0031	.3081	.48	1.01	.255	.0961	
.10 .12	.0305	.0117		.40	.02	.0046	.0069	.72 .01	.0027	.3082	.49	.89	.225	.1001	
.11 .12	.0293	.0122		.41	.02	.0042	.0070	.73 .01	.0023		.50	.81	.203	.1037	
.12 .11	.0283	.0127		.42	.01	.0035	.0071	.74 .01	.0019		.51	.69	.175	.1069	
.13 .11	.0272	.0132		.43	.01	.0028	.0072	.75 .01	.0016		.52	.62	.156	.1197	
.14 .10	.0262	.0136		.44	.01	.0022		.76 .01	.0013		.53	.50	.126	.1120	
.15 .10	.0252	.0140		.45	.01	.0018		.77 T	.0010		.54	.41	.104	.1139	
.16 .09	.0236	.0144		.46	.01	.0016		.78 T	.0007		.55	.36	.0918	.1155	
.17 .09	.0223	.0148		.47	.01	.0013		.79 T	.0005		.56	.32	.0797	.1169	
.18 .08	.0209	.0152		.48	T	.0011		.80 T	.0002		.57	.25	.0633	.1181	
.19 .08	.0196	.0155		.49	T	.0007		.81 0	0	.3084	.58	.21	.0540	.1191	
.20 .07	.0180	.0158		.50	T	.0003	.0073	.82 0	0		.59	.18	.0449	.1199	
.21 .06	.0156	.0161		.51	0	0		June 20 6			5:00	.12	.0298	.1205	
.22 .06	.0145	.0163						p. m.			.01	.12	.0293	.1210	
.23 .05	.0129	.0165		June 12 4				1:16	0	0	.02	.10	.0257	.1215	
.24 .05	.0118	.0167		p. m.				.17	1.56	.394	.03	.09	.0223	.1219	
.25 .04	.0105	.0169		9:22	0	0	0	.18	2.26	.570	.04	.07	.0185	.1222	
.26 .03	.0086	.0171		.23	.16	.0394	.0003	.19	1.87	.472	.05	.06	.0144	.1225	
.27 .03	.0073	.0172		.24	.17	.0429	.0010	.20	2.20	.555	.06	.05	.0127	.1227	
.28 .03	.0066	.0173		.25	.27	.0691	.0019	.21	2.64	.666	.07	.04	.0098	.1229	
.29 .02	.0056	.0174		.26	.32	.0810	.0031	.22	2.63	.664	.08	.03	.0086	.1231	
.30 .02	.0049	.0175		.27	.32	.0810	.0045	.23	3.53	.891	.09	.03	.0071	.1232	
.31 .02	.0042	.0176		.28	.33	.0838	.0059	.24	3.92	.989	.10	.02	.0056	.1233	
.32 .01	.0035	.0177		.29	.32	.0807	.0073	.25	4.41	1.12	.11	.02	.0042	.1234	
.33 .01	.0028	.0178		.30	.30	.0764	.0086	.26	5.41	1.37	.12	.01	.0034	.1235	
.34 .01	.0022			.31	.26	.0663	.0098	.27	6.25	1.58	.13	.01	.0033	.1236	
.35 .01	.0018			.32	.23	.0585	.0108	.28	7.00	1.77	.14	.01	.0023		
.36 .01	.0016			.33	.20	.0505	.0117	.29	7.42	1.87	.15	.01	.0014		
.37 .01	.0013			.34	.16	.0404	.0125	.30	6.80	1.72	.16	.01	.0014		
.38 T	.0011			.35	.14	.0341	.0131	.31	5.44	1.37	.17	T	.0011		
.39 T	.0007			.36	.10	.0260	.0136	.32	4.71	1.19	.18	T	.0007		
.40 T	.0006			.37	.09	.0225	.0140	.33	4.34	1.09	.19	T	.0004		
.41 T	.0007			.38	.07	.0181	.0143	.34	3.82	.964	.20	T	.0002		
.42 T	.0006			.39	.06	.0139	.0146	.35	3.08	.800	.21	T	.0002		
.43 T	.0004			.40	.04	.0102	.0148	.36	2.74	.692	.22	0	0	.1237	
.44 T	.0003			.41	.03	.0069	.0149	.37	2.57	.649					
.45 T	.0002			.42	.02	.0039	.0150	.38	3.00	.758					
.46 T	.0001			.43	.01	.0022		.39	3.56	.899					
.47 0	0	.0180		.44	.01	.0019		.40	3.44	.888					
May 20 2				.45	T	.0010		.41	3.22	.813					
a. m.	0	0	0	.46	T	.0002	.0151	.42	3.06	.772					
.43 .02	.0061	.0001		.47	0	0		.43	2.75	.694					
.44 .03	.0069	.0001						.44	2.23	.563					
.45 .02	.0050	.0002		June 15 3				.45	2.04	.515					
.46 .02	.0054	.0003		a. m.				.46	1.92	.484					
.47 .02	.0062	.0004		3:23	0	0	0	.47	1.42	.358					
.48 .03	.0065	.0005		.24	.19	.0472	.0004	.48	.99	.250					
.49 .02	.0059	.0006		.25	.79	.200	.0025	.49	.81	.204					
.50 .02	.0056	.0007		.26	1.79	.452	.0079	.50	.70	.176					
.51 .02	.0047	.0008		.27	2.16	.545	.0162	.51	.63	.158					
.52 .02	.0043	.0009		.28	3.40	.858	.0279	.52	.58	.146					
.53 .02	.0038	.0010		.29	4.90	1.24	.0454	.53	.55	.139					
.54 .01	.0034	.0011		.30	4.96	1.25	.0664	.54	.48	.120					
.55 .01	.0030	.0012		.31	4.77	1.20	.0874	.55	.36	.0898					
.56 .01	.0025			.32	5.24	1.32	.1084	.56	.25	.0628					
.57 .01	.0022			.33	5.43	1.37	.1307	.57	.22	.0555					
.58 .01	.0018			.34	4.87	1.23	.1524	.58	.18	.0449					
.59 .01	.0015			.35	4.43	1.12	.1721	.59	.14	.0341					
								2:00	.12	.0315					

See footnote4 at end of table; p. 82.



TABLE 35.—Run-off from watershed 8—H, March 27, 1939, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1939				1939				1940				1940			
June 21				July 1				Feb. 11 <sup>11</sup>				May 17			
p. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches	p.m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches
8:15	0.06	0.0145	0.0298	5:03	0.21	0.0516	0.0383	2:24	0	0	0	2:13	0.01	0.0031	0.0003
16	.04	.0102	.0300	5:04	.19	.0478	.0391	25	T	T	T	14	.01	.0031	.0003
17	.03	.0074	.0301	5:05	.16	.0394	.0398	30	.01	.0018	.0001	15	.01	.0026	.0003
18	.02	.0059	.0302	5:06	.12	.0298	.0404	35	.01	.0026	.0003	20	.01	.0015	.0005
19	.02	.0041	.0303	5:07	.10	.0238	.0408	40	.02	.0041	.0006	25	T	.0011	.0006
20	.01	.0023	.0304	5:08	.09	.0217	.0412	45	.02	.0047	.0010	30	T	.0011	.0007
21	T	.0006		5:09	.07	.0178	.0415	50	.02	.0056	.0014	3:00	T	.0003	.0011
22	0	0	.0304	5:10	.06	.0149	.0418	55	.02	.0059	.0019	3:30	T	.0005	.0013
June 25 <sup>8</sup>				5:11	.05	.0136	.0420	3:00	.02	.0063	.0024	4:00	T	.0011	.0017
a. m.				5:12	.05	.0118	.0422	3:05	.03	.0066	.0029	3:30	T	.0008	.0022
1:26	0	0	0	5:13	.04	.0101	.0424	3:10	.03	.0070	.0035	5:00	T	.0008	.0026
27	.34	.0845	.0007	5:14	.03	.0085	.0426	3:15	.03	.0073	.0041	3:30	T	.0005	.0029
28	.43	.108	.0023	5:15	.03	.0070	.0427	3:20	.03	.0076	.0047	6:00	T	T	.0030
29	.44	.112	.0041	5:16	.02	.0056	.0428	3:25	.03	.0080	.0053	3:30	0	0	
30	.44	.112	.0060	5:17	.02	.0044	.0429	3:30	.03	.0083	.0060	3:36	0	0	.0030
31	.41	.102	.0078	5:18	.02	.0039	.0430	3:35	.03	.0088	.0067	3:37	T	T	
32	.36	.0916	.0094	5:19	.01	.0032	.0431	4:00	.04	.0095	.0075	3:38	T	T	
33	.32	.0820	.0108	5:20	.01	.0024	.0432	4:05	.05	.0119	.0084	3:39	T	.0001	
34	.27	.0684	.0121	5:21	.01	.0018		4:10	.05	.0127	.0094	4:00	T	.0003	
35	.23	.0580	.0132	5:22	.01	.0013		4:15	.04	.0103	.0104	4:05	T	.0003	
36	.22	.0545	.0141	5:23	T	.0008		4:20	.03	.0080	.0112	7:00	T	T	.0031
37	.19	.0453	.0149	5:24	T	.0007		4:25	.03	.0066	.0130	1:15	T	T	
38	.17	.0415	.0156	5:25	T	.0003	.0433	4:30	.02	.0059	.0146	3:30	T	.0005	.0032
39	.15	.0375	.0163	5:26	0	0		5:00	.02	.0041	.0171	4:45	T	.0003	.0033
40	.13	.0330	.0169	Aug. 11 <sup>10</sup>				5:30	.01	.0026	.0188	8:00	T	T	.0034
41	.12	.0290	.0174	p. m.				6:00	.01	.0022	.0200	3:30	T	.0003	.0035
42	.10	.0253	.0179	9:58	0	0	0	6:30	.01	.0018	.0210	9:00	T	T	.0036
43	.09	.0222	.0183	10:00	10.5	2.64	.0443	7:00	T	.0015	.0218	3:30	0	0	
44	.07	.0184	.0189	10:01	10.7	2.67	.0886	8:00	T	.0008	.0230	4:45	0	0	
45	.06	.0138	.0189	10:02	10.2	2.54	.1319	9:00	T	.0003	.0236	5:00	T	T	
46	.04	.0101	.0191	10:03	8.23	2.06	.1702	10:00	T	.0003	.0238	5:05	T	T	
47	.03	.0080	.0193	10:04	6.42	1.61	.2009	Feb. 14 <sup>11</sup>				8:23	0	0	0
48	.03	.0081	.0194	10:05	5.13	1.28	.2249	p. m.				24	T	.0011	
49	.03	.0069	.0195	10:06	3.96	.991	.2439	3:55	0	0	0	25	.01	.0015	
50	.02	.0061	.0196	10:07	3.34	.836	.2591	4:00	T	T	T	26	.01	.0018	
51	.02	.0051	.0197	10:08	2.83	.708	.2720	4:05	T	.0005		3:00	T	.0008	.0001
52	.02	.0043	.0198	10:09	2.17	.543	.2824	4:10	T	.0011	.0001	3:30	T	.0008	.0003
53	.02	.0038	.0199	10:10	1.53	.383	.2901	4:15	T	.0011	.0002	4:00	T	.0004	.0004
54	.01	.0033	.0200	10:11	.94	.235	.2953	4:20	T	.0011	.0005	9:00	T	.0003	.0005
55	.01	.0027		10:12	.58	.145	.2985	4:25	T	.0011	.0011	1:15	T	.0003	.0006
56	.01	.0023		10:13	.45	.113	.3007	4:30	T	.0008	.0016	3:30	T	.0005	.0007
57	.01	.0016		10:14	.31	.0776	.3077	4:35	T	.0003	.0017	4:45	T	.0004	.0008
58	T	.0009		10:15	.19	.0476	.3093	4:40	T	T		10:00	T	.0002	.0009
59	T	.0005		10:16	.21	.0533	.3041	4:45	T	T		11:00	T	T	
2:00	T	.0005		10:17	.23	.0571	.3033	4:7	0	0	.0017	3:00	0	0	.0009
2:01	T	.0007		10:18	.23	.0571	.3041	Feb. 27 <sup>11</sup>				Nov. 25 <sup>14</sup>			
2:02	T	.0006		10:19	.17	.0426	.3050	p. m.				p. m.			
2:03	T	.0004		10:20	.13	.0328	.3060	1:59	0	0	0	3:38	0	0	0
2:04	T	.0003		10:21	.09	.0231	.3068	2:00	T	T	T	3:39	T	T	
2:05	T	T		10:22	.06	.0161	.3074	2:01	T	.0003		3:40	T	T	
2:06	0	0	.0202	10:23	.06	.0147	.3079	2:02	T	.0005		3:45	T	.0003	
July 1 <sup>9</sup>				10:24	.05	.0136	.3082	2:03	T	.0008		4:00	T	.0005	.0001
a. m.				10:25	.04	.0110	.3085	2:04	T	.0011	.0001	4:05	T	.0003	.0002
4:47	0	0	0	10:26	.03	.0069	.3087	2:10	T	.0011	.0005	4:10	T	T	.0003
48	.11	.0285	.0002	10:27	.02	.0047	.3089	2:15	T	.0011	.0011	4:15	0	0	.0003
49	.21	.0526	.0009	10:28	.02	.0042	.3091	2:20	T	.0011	.0016	4:20	0	0	.0003
50	.50	.126	.0024	10:29	.01	.0030	.3092	2:25	T	.0008	.0019	4:25	T	T	
51	.86	.214	.0052	10:30	.01	.0023	.3093	2:30	T	.0003	.0020	4:30	T	T	
52	1.06	.265	.0092	10:31	.01	.0020		2:35	T	.0001		4:35	T	.0003	.0004
53	.97	.243	.0134	10:32	.01	.0015		2:40	0	0	.0020	4:40	T	.0005	.0005
54	.95	.239	.0174	10:33	T	.0010		2:45	0	0		4:45	T	.0005	.0006
55	.84	.210	.0211	10:34	T	.0006		2:50	0	0		4:50	T	.0008	.0008
56	.74	.185	.0244	10:35	T	.0005		2:55	0	0		5:00	T	.0008	.0010
57	.71	.179	.0274	10:36	T	.0007		3:00	0	0		5:05	T	.0005	.0012
58	.61	.153	.0302	10:37	T	.0006		3:05	.01	.0018		5:10	T	.0005	.0013
59	.48	.121	.0325	10:38	T	.0004		3:10	.01	.0026		5:15	T	.0011	.0014
5:00	.41	.102	.0344	10:39	T	.0003		3:15	.01	.0033	.0001	5:20	T	.0011	.0016
5:01	.36	.0908	.0360	10:40	T	T		3:20	.01	.0031	.0002	5:25	T	.0008	.0018
5:02	.27	.0676	.0373	10:41	0	0	.3096	3:25	.01	.0026		5:30	T	.0003	.0020
								3:30	.01	.0026		5:35	0	0	.0020

<sup>1</sup> Total rainfall for storm of Apr. 4, 1.36 inches. Soil wet and firm before rain. Winter wheat 2 inches high.

<sup>2</sup> Total rainfall for storm of May 20, 0.86 inch. Soil dry before rain. Corn planted with lister in straight rows 42 inches apart, May 12.

<sup>3</sup> Total rainfall for storm of May 22, 0.39 inch. Soil moist and firm before rain. Corn sprouting.

<sup>4</sup> Total rainfall for storm of June 12, 0.37 inch. Soil moist and firm before rain. Corn 5 inches high.

<sup>5</sup> Total rainfall for storm of June 15, 0.70 inch. Soil moist from rain of June 12. Corn 6 inches high.

<sup>6</sup> Total rainfall for storm of June 20, 1.49 inches. Soil moist before rain. Corn 8 inches high, cultivated June 19. Considerable washing down the corn rows.

<sup>7</sup> Total rainfall for storm of June 21, 0.24 inch. Soil wet and plastic before rain.

<sup>8</sup> Total rainfall for storm of June 25, 0.61 inch. Soil moist and firm. Corn 12 inches high. Small gullies up each corn row.

<sup>9</sup> Total rainfall for storm of July 1, 0.46 inch. Soil dry on surface before rain. Corn 16 inches high, cultivated June 29.

<sup>10</sup> Total rainfall for storm of Aug. 11, 0.77 inch. Soil dry before rain. Corn 42 inches high, very poor.

<sup>11</sup> Run-off from melting snow.

<sup>12</sup> Total rainfall for storm of May 17, 1.56 inches. Soil moist before rain. Corn had been planted on the contour with lister, May 13.

<sup>13</sup> Total rainfall for storm of June 8, 1.08 inches. Soil dry before rain. Corn 4 inches high, cultivated June 6.

<sup>14</sup> Total rainfall for storm of Nov. 25-26, 0.40 inch. Soil moist before rain. Corn stalks remained on field.



TABLE 36.—Run-off from watershed 9-H, April 20, 1939, to December 31, 1940

LOCATION: Latitude 40°15'51", longitude 98°22'39".

## PHYSICAL CHARACTERISTICS:

Drainage area.—3.78 acres.

Length of principal watercourse.—530 feet.

Topography.—Undulating, well drained.

Slope.—Average slope is 4.8 percent. 14 percent of the watershed has a slope of less than 2 percent; 42 percent, 2 to 5 percent; 37 percent, 5 to 8 percent; and 7 percent has a slope of 8 to 12 percent.

Erosion condition.—No depressions or gullies were present.

The area has lost less than 25 percent of the topsoil.

Soil.—Hastings silt loam, 100 percent.

## LAND USE AND VEGETAL COVER:

Land use distribution.—Cultivated land, 100 percent.

Vegetal cover and soil condition.—The crop for 1939 was corn planted in straight rows; for 1940, oats planted on the contour. Cultural operations in 1939 were as follows:

April 21, single-disked, east and west.

May 11-12, corn planted with lister in straight rows, east and west.

June 3, corn cultivated with go-dig cultivator.

June 12, corn cultivated with go-dig cultivator.

June 29, corn cultivated with shovel cultivator.

The corn was a complete failure for both forage and grain.

At maturity the stalks were about 44 inches high. The stalks were left on the land.

Cultural operations in 1940 were as follows:

March 27, double-disked on the contour.

March 29, oats planted on the contour with grain drill.

June 29, oats harvested. A sample yielded 23.9 bushels an acre.

July 29, half the watershed was plowed about 5 inches deep in straight lines with a moldboard plow.

August 13, plowing completed.

September 17, harrowed in straight lines with peg-tooth harrow.

September 27, planted to winter wheat in straight rows with grain drill.

The wheat sprouted and thrived, reaching a height of 3 inches at the end of the year.

## MEASUREMENTS:

Precipitation.—Rainfall was measured at recording rain gage B28R (fig 2). Snowfall is measured by weighing and recording rain and snow gages and by cooperative observers' measurements. Snow inventory on the watershed is obtained by inspection.

Run-off.—Run-off is measured by an H flume 3 feet deep.

Changes in instrumentation during period.—None.

## SUMMARY OF RECORDS:

Run-off.—Annual run-off amount 1940, 0.053 inch. Maximum rate of run-off 1939, 1.874 inches per hour, August 11; maximum rate 1940, 0.041 inch per hour, May 17.

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1939				1939				1939				1939			
May 20 <sup>1</sup>				May 22				June 15				June 20			
a.m.	Second-foot	Inches per hour	Inches	a.m.	Second-foot	Inches per hour	Inches	a.m.	Second-foot	Inches per hour	Inches	p.m.	Second-foot	Inches per hour	Inches
5:38-----	0	0	0	3:05-----	0.01	0.0019		3:37-----	0.57	0.149	0.0493	1:35-----	1.08	0.283	0.1679
:39-----	.02	.0054		:06-----	T	.0009		:38-----	.37	.0981	.0514	:36-----	.90	.236	.1722
:40-----	.02	.0057	.0001	:07-----	T	.0006		:39-----	.24	.0640	.0528	:37-----	.80	.209	.1759
:41-----	.03	.0071	.0002	:08-----	T	.0006		:40-----	.18	.0468	.0537	:38-----	.80	.211	.1794
:42-----	.04	.0100	.0003	:09-----	T	.0003		:41-----	.16	.0411	.0544	:39-----	1.05	.275	.1835
:43-----	.03	.0091	.0005	:10-----	T	.0002		:42-----	.12	.0317	.0550	:40-----	1.05	.276	.1881
:44-----	.03	.0091	.0007	:11-----	0	0	0.0005	:43-----	.09	.0242	.0555	:41-----	1.05	.276	.1927
:45-----	.03	.0076	.0008					:44-----	.08	.0216	.0559	:42-----	1.05	.276	.1973
:46-----	.03	.0076	.0009	June 12 <sup>3</sup>				:45-----	.08	.0201	.0562	:43-----	.88	.231	.2015
:47-----	.03	.0074	.0010	p.m.				:46-----	.06	.0164	.0565	:44-----	.71	.187	.2050
:48-----	.04	.0107	.0012	9:19-----	0	0	0	:47-----	.05	.0138	.0568	:45-----	.67	.176	.2080
:49-----	.04	.0107	.0014	:20-----	.04	.0094	.0001	:48-----	.05	.0124	.0570	:46-----	.66	.174	.2109
:50-----	.04	.0107	.0016	:21-----	.04	.0106	.0003	:49-----	.04	.0106	.0572	:47-----	.65	.170	.2138
:51-----	.03	.0074	.0018	:22-----	.03	.0091	.0005	:50-----	.03	.0089	.0574	:48-----	.53	.139	.2164
:52-----	.02	.0058	.0019	:23-----	.02	.0058	.0006	:51-----	.03	.0074	.0575	:49-----	.45	.119	.2185
:53-----	.02	.0039	.0020	:24-----	.02	.0046	.0007	:52-----	.02	.0058	.0576	:50-----	.42	.111	.2204
:54-----	.01	.0018		:25-----	.01	.0036	.0008	:53-----	.02	.0046	.0577	:51-----	.38	.100	.2222
:55-----	.01	.0014		:26-----	.01	.0024		:54-----	.01	.0036	.0578	:52-----	.34	.0892	.2238
:56-----	T	.0006		:27-----	.01	.0016		:55-----	.01	.0026	.0579	:53-----	.29	.0756	.2252
:57-----	T	.0003		:28-----	.01	.0013		:56-----	.01	.0019		:54-----	.26	.0695	.2264
:58-----	T	.0006		:29-----	T	.0008		:57-----	T	.0012		:55-----	.25	.0653	.2275
:59-----	T	.0003		:30-----	T	.0004		:58-----	T	.0006		:56-----	.22	.0568	.2285
6:00-----	T	.0003		:31-----	T	.0002		:59-----	0	0	.0580	:57-----	.19	.0503	.2294
:01-----	T	.0003		:32-----	T	.0001		June 20 <sup>5</sup>				:58-----	.17	.0449	.2302
:02-----	T	.0002		:33-----	T	.0001		1:14-----	0	0	0	:59-----	.15	.0396	.2309
:03-----	T	T		:34-----	0	0	.0009	p.m.				2:00-----	.13	.0345	.2315
:04-----	0	0	.0021					:15-----	1.73	.453	.0038	:01-----	.12	.0303	.2320
May 22 <sup>2</sup>				June 15 <sup>4</sup>				:16-----	1.81	.475	.0115	:02-----	.10	.0262	.2325
a.m.				a.m.				:17-----	1.74	.456	.0193	:03-----	.08	.0221	.2329
2:48-----	0	0	0	3:20-----	0	0	0	:18-----	1.51	.397	.0264	:04-----	.07	.0187	.2332
:49-----	.01	.0034		:21-----	.02	.0061		:19-----	1.34	.351	.0326	:05-----	.06	.0152	.2335
:50-----	.01	.0029		:22-----	.05	.0119	.0002	:20-----	1.22	.319	.0382	:06-----	.05	.0124	.2337
:51-----	.01	.0030		:23-----	.14	.0364	.0006	:21-----	1.12	.294	.0433	:07-----	.04	.0093	.2339
:52-----	.01	.0028		:24-----	.12	.0326	.0012	:22-----	1.12	.294	.0482	:08-----	.02	.0065	.2340
:53-----	.01	.0017		:25-----	.40	.104	.0023	:23-----	1.25	.327	.0534	:09-----	.02	.0058	.2341
:54-----	T	.0009		:26-----	.43	.112	.0041	:24-----	1.47	.385	.0543	:10-----	.02	.0046	.2342
:55-----	T	.0003		:27-----	.48	.125	.0061	:25-----	2.19	.575	.0673	:11-----	.01	.0029	.2343
:56-----	T	.0006		:28-----	.60	.158	.0085	:26-----	2.91	.763	.0784	:12-----	T	.0008	
:57-----	T	.0003		:29-----	.75	.196	.0115	:27-----	3.09	.810	.0915	:13-----	T	.0006	
:58-----	T	.0001		:30-----	.94	.246	.0152	:28-----	2.98	.782	.1048	:14-----	0	0	.2343
:59-----	0	0		:31-----	1.08	.284	.0196	:29-----	2.64	.691	.1171				
3:00-----	0	0		:32-----	1.41	.370	.0251	:30-----	2.49	.653	.1283	4:24-----	0	0	0
:01-----	T	.0010		:33-----	1.53	.401	.0315	:31-----	2.27	.596	.1387	:25-----	.08	.0219	.0002
:02-----	.01	.0015		:34-----	1.24	.324	.0375	:32-----	1.98	.521	.1480	:26-----	.18	.0460	.0008
:03-----	.01	.0020		:35-----	1.05	.274	.0425	:33-----	1.66	.436	.1560	:27-----	.25	.0666	.0017
:04-----	.01	.0022		:36-----	.76	.199	.0464	:34-----	1.36	.357	.1626	:28-----	.51	.133	.0034
												:29-----	.74	.193	.0061

See footnotes at end of table, p. 85.



TABLE 36.—Run-off from watershed 9-H, April 20, 1939, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off			Accumulated run-off	Date and time	Instantaneous rate of run-off			Accumulated run-off	Date and time	Instantaneous rate of run-off			Accumulated run-off	Date and time	Instantaneous rate of run-off			Accumulated run-off
1939					1939					1939					1940				
June 20					June 25					Aug. 7					Feb. 15				
p. m.	Second-foot	Inches per hour	Inches		a. m.	Second-foot	Inches per hour	Inches		p. m.	Second-foot	Inches per hour	Inches		p. m.	Second-foot	Inches per hour	Inches	
4:30	0.93	0.243	0.0097		1:30	0.99	0.260	0.0490		9:04	0.01	0.0026			3:00	T	0.0006		
31	.89	.234	.0137		31	.88	.231	.0531		35	.05	.0025			30	T	.0006	0.0003	
32	.71	.187	.0172		32	.73	.192	.0566		36	.01	.0028			45	T	.0004	.0004	
33	.57	.149	.0200		33	.60	.157	.0595		37	.01	.0028			400	T	.0003	.0005	
34	.55	.144	.0224		34	.58	.152	.0621		38	.01	.0028			15	T	T	.0006	
35	1.01	.264	.0258		35	.56	.146	.0646		39	.01	.0028			40	T	T		
36	1.50	.392	.0313		36	.51	.133	.0669		40	.01	.0028			42	0	0	.0006	
37	1.90	.498	.0387		37	.46	.122	.0690		41	.01	.0028			Mar. 7 <sup>12</sup>				
38	1.83	.480	.0469		38	.41	.1080	.0709		42	.01	.0028			p. m.				
39	1.83	.480	.0549		39	.34	.0879	.0725		43	.01	.0028			12:49	0	0	0	
40	1.46	.384	.0621		40	.32	.0853	.0739		44	.01	.0028			50	T	T		
41	1.34	.351	.0682		41	.34	.0884	.0753		45	.01	.0026			1:00	T	T		
42	1.20	.314	.0737		42	.27	.0711	.0766		46	.01	.0023			2:30	T	T		
43	1.00	.262	.0785		43	.24	.0640	.0777		47	.01	.0022			3:00	T	.0004	.0001	
44	.83	.218	.0825		44	.21	.0547	.0787		48	.01	.0020			4:00	T	.0006	.0006	
45	.71	.186	.0859		45	.16	.0412	.0795		49	.01	.0018			5:00	T	.0006	.0009	
46	.59	.154	.0887		46	.14	.0368	.0801		50	.01	.0019			6:00	T	.0003	.0012	
47	.48	.127	.0910		47	.12	.0308	.0807		51	.01	.0027			7:00	T	T		
48	.42	.111	.0930		48	.10	.0253	.0812		52	.01	.0023				T	T		
49	.32	.0853	.0946		49	.08	.0207	.0816		53	.01	.0027				T	T		
50	.27	.0716	.0959		50	.07	.0175	.0819		54	.01	.0023				T	T		
51	.20	.0518	.0969		51	.06	.0162	.0822		55	.01	.0027				0	0	.0012	
52	.18	.0463	.0977		52	.05	.0142	.0825		56	.01	.0023							
53	.17	.0433	.0984		53	.05	.0124	.0827		57	.01	.0022							
54	.13	.0334	.0990		54	.04	.0106	.0829		58	.01	.0020							
55	.12	.0319	.0995		55	.03	.0085	.0831		59	.01	.0018							
56	.10	.0253	.1000		56	.02	.0057	.0832		500	.01	.0013							
57	.08	.0207	.1004		57	.02	.0042	.0833		51	T	.0006							
58	.06	.0166	.1007		58	.01	.0036	.0834		52	T	.0001							
59	.05	.0125	.1009		59	.01	.0024			53	0	0	.0017						
500	.03	.0089	.1011		2:00	.01	.0014			Aug. 11 <sup>10</sup>									
501	.02	.0056	.1012		501	T	0	.0006	.0535	p. m.									
502	.01	.0031	.1013		502	0	0	.0006		5:56	0	0	0	.0051					
503	T	.0011			Aug. 1 <sup>8</sup>					57	2.33	.612	.0051						
504	0	0	.1013		p. m.					58	3.56	.934	.0180						
June 21 <sup>6</sup>					7:55	0	0	0		59	4.30	1.13	.0352						
p. m.					56	.24	.0616	.0005		10:00	5.75	1.51	.0571						
7:47	0	0	0		57	.10	.0263	.0012		01	7.00	1.84	.0850						
48	.22	.0566	.0005		58	.02	.0066	.0015		02	7.14	1.87	.1159						
49	.95	.248	.0030		59	.01	.0015	.0016		03	5.96	1.56	.1445						
50	1.97	.517	.0094		8:00	.01	.0018			04	4.18	1.10	.1667						
51	2.33	.612	.0188		01	.01	.0024			05	3.01	.790	.1824						
52	2.16	.567	.0286		02	.01	.0014			06	2.53	.665	.1945						
53	1.83	.479	.0373		03	T	.0006	.0016		07	1.82	.478	.2040						
54	1.39	.364	.0443		04	0	0			08	.84	.222	.2098						
55	1.03	.271	.0496		Aug. 7 <sup>9</sup>					09	.69	.180	.2132						
56	1.00	.262	.0540		p. m.					10	.90	.235	.2167						
57	.81	.212	.0579		4:57	0	0	0		11	.75	.196	.2203						
58	.56	.147	.0609		58	.01	.0038			12	.55	.143	.2231						
59	.42	.111	.0631		59	.01	.0014			13	.48	.125	.2253						
8:00	.50	.132	.0651		50	.01	.0006			14	.26	.0682	.2269						
01	.39	.102	.0671		51	T	.0002			15	.25	.0656	.2280						
02	.34	.0879	.0687		52	T	.0002			16	.21	.0544	.2290						
03	.27	.0705	.0700		53	T	.0002			17	.17	.0443	.2298						
04	.22	.0577	.0711		54	0	0	T		18	.14	.0357	.2305						
05	.24	.0616	.0721		55	0	0			19	.12	.0308	.2311						
06	.20	.0534	.0731		56	0	0			20	.10	.0253	.2316						
07	.16	.0422	.0739		35	0	0	0		21	.08	.0207	.2320						
08	.14	.0368	.0746		36	.06	.0155	.0001		22	.06	.0166	.2323						
09	.12	.0308	.0752		37	.17	.0446	.0006		23	.05	.0125	.2325						
10	.10	.0264	.0757		38	.18	.0475	.0014		24	.03	.0089	.2327						
11	.10	.0249	.0761		39	.14	.0368	.0021		25	.02	.0065	.2328						
12	.09	.0227	.0765		40	.11	.0286	.0026		26	.02	.0058	.2329						
13	.08	.0206	.0769		41	.07	.0185	.0030		27	.02	.0046	.2330						
14	.07	.0184	.0772		42	.06	.0149	.0033		28	.01	.0036	.2331						
15	.06	.0158	.0775		43	.03	.0071	.0035		29	.01	.0024							
16	.05	.0124	.0777		44	.02	.0065	.0036		30	.01	.0018							
17	.04	.0104	.0779		45	.02	.0058	.0037		31	.01	.0017							
18	.04	.0100	.0781		46	.02	.0046	.0038		32	T	.0011							
19	.03	.0091	.0783		47	.01	.0038	.0039		33	T	.0006							
20	.03	.0077	.0784		48	.01	.0032	.0040		34	T	.0001							
21	.02	.0058	.0785		49	.01	.0026			35	0	0	.2332						
22	.01	.0039	.0786		50	.01	.0018			Oct. 8 <sup>11</sup>									
23	.01	.0018			51	.01	.0013			p. m.									
24	.01	.0014			52	T	.0008			9:53	0	0	0						
25	T	.0006			53	T	.0004			54	.01	.0038							
26	0	0			54	T	.0002			55	.01	.0014							
June 25 <sup>7</sup>					55	T	T			56	T	.0006							
a. m.					56	0	0	.0041		57	T	.0002							
1:21	0	0																	



TABLE 36.—Run-off from watershed 9—H, April 20, 1939, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1940				1940				1940				1940			
Mar. 16				May 17				May 17				June 8			
p. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches
1:45-----	0.01	0.0038	0.0064	2:32-----	0.13	0.0336	0.0056	4:55-----	0.02	0.0061	0.0119	8:35-----	0.09	0.0235	0.0029
2:00-----	.01	.0038	.0074	3:3-----	.12	.0309	.0061	5:00-----	.03	.0083	.0125	3:35-----	.08	.0212	.0033
1:15-----	.01	.0038	.0084	3:4-----	.11	.0283	.0066	5:05-----	.04	.0114	.0133	3:7-----	.08	.0201	.0036
3:0-----	.01	.0032	.0093	3:5-----	.09	.0246	.0070	1:10-----	.04	.0112	.0142	3:8-----	.08	.0197	.0039
4:5-----	.01	.0028	.0101	3:6-----	.09	.0223	.0074	1:15-----	.04	.0099	.0151	3:9-----	.08	.0199	.0042
3:00-----	.01	.0023	.0107	3:7-----	.08	.0201	.0078	2:20-----	.02	.0064	.0158	4:0-----	.08	.0205	.0045
4:00-----	.01	.0019	.0128	3:8-----	.07	.0180	.0081	2:25-----	.02	.0040	.0162	4:1-----	.08	.0212	.0048
5:00-----	T	.0012	.0144	3:9-----	.06	.0151	.0084	3:30-----	.01	.0027	.0165	4:2-----	.08	.0219	.0052
6:00-----	T	.0006	.0153	4:0-----	.05	.0132	.0086	3:35-----	.01	.0019	.0167	4:3-----	.08	.0223	.0056
7:00-----	T	.0004	.0158	4:1-----	.04	.0115	.0088	4:40-----	.01	.0015	.0168	4:4-----	.08	.0212	.0060
8:00-----	T	T	.0160	4:2-----	.03	.0091	.0090	4:45-----	T	.0009	.0169	4:5-----	.08	.0201	.0063
9:00-----	T	T		4:3-----	.03	.0083	.0091	6:00-----	T	T	.0170	4:6-----	.07	.0190	.0066
1:15-----	0	0	.0160	4:4-----	.03	.0068	.0092	1:15-----	0	0	.0170	4:7-----	.06	.0170	.0069
				4:5-----	.02	.0055	.0093					4:8-----	.06	.0150	.0072
May 17 <sup>12</sup>				4:6-----	.02	.0043	.0094	June 8 <sup>14</sup>				4:9-----	.05	.0132	.0074
a. m.				4:7-----	.01	.0033	.0095	p. m.				5:0-----	.04	.0115	.0076
2:14-----	0	0	0	4:8-----	.01	.0028	.0096	8:14-----	0	0	0	5:1-----	.04	.0115	.0078
1:15-----	T	.0012	.0001	5:0-----	.07	.0019	.0096	1:15-----	T	.0012	.0001	5:2-----	.04	.0107	.0080
2:0-----	.01	.0019	.0001	5:5-----	.03	.0007	.0097	1:16-----	T	.0012	.0001	5:3-----	.04	.0099	.0082
2:1-----	.01	.0017		3:00-----	.02	.0004		2:20-----	T	.0006	.0001	5:4-----	.03	.0091	.0084
2:2-----	.03	.0068	.0002	1:15-----	T	T		2:22-----	.01	.0019		5:5-----	.03	.0083	.0085
2:3-----	.05	.0123	.0004	3:0-----	T	.0003	.0098	2:25-----	.01	.0019	.0002	5:6-----	.03	.0068	.0086
2:4-----	.09	.0223	.0007	4:00-----	T	.0006	.0100	2:26-----	.01	.0019		5:7-----	.02	.0055	.0087
2:5-----	.13	.0336	.0012	1:15-----	T	.0006	.0102	2:27-----	.01	.0038		5:8-----	.02	.0049	.0088
2:6-----	.15	.0404	.0018	2:0-----	.01	.0019	.0103	2:28-----	.05	.0124	.0003	5:9-----	.01	.0038	.0089
2:7-----	.16	.0409	.0025	2:5-----	.01	.0019	.0105	2:29-----	.07	.0180	.0006	9:00-----	.01	.0032	.0090
2:8-----	.15	.0393	.0032	3:0-----	.01	.0018	.0107	3:30-----	.08	.0223	.0009	1:01-----	.01	.0018	.0092
2:9-----	.14	.0367	.0038	3:5-----	.01	.0017	.0109	3:31-----	.09	.0235	.0013	T	T	.0006	.0093
3:0-----	.13	.0351	.0044	4:0-----	.01	.0018	.0111	3:32-----	.09	.0246	.0017	T	T	T	
3:1-----	.13	.0344	.0050	4:5-----	.01	.0023	.0113	3:33-----	.10	.0251	.0021	T	T	T	
				5:0-----	.01	.0038	.0115	3:34-----	.09	.0246	.0025	10:00-----	0	0	.0093

<sup>1</sup> Total rainfall for storm of May 20, 0.87 inch. Soil dry before rain. Corn planted with lister May 11-12 in straight rows 42 inches apart.

<sup>2</sup> Total rainfall for storm of May 22, 0.38 inch. Soil moist and firm before rain. Corn sprouted.

<sup>3</sup> Total rainfall for storm of June 12, 0.33 inch. Soil moist before rain. Corn 8 inches high. Cultivated this day.

<sup>4</sup> Total rainfall for storm of June 15, 0.60 inch. Soil moist from rain of June 12. Corn 10 inches high.

<sup>5</sup> Total rainfall for storm of June 20, 1.23 inches. Soil moist. Corn 12 inches high. Considerable washing down corn rows and furrows left by cultivator.

<sup>6</sup> Total rainfall for storm of June 21, 0.24 inch. Soil wet and plastic before rain.

<sup>7</sup> Total rainfall for storm of June 25, 0.61 inch. Soil moist and firm. Corn 16 inches high. Gullies from previous rains remained.

<sup>8</sup> Total rainfall for storm of Aug. 1, 0.32 inch. Soil loose and dry. Corn 44 inches high, cultivated June 29. Damaged by grasshoppers and drought.

<sup>9</sup> Total rainfall for storm of Aug. 7, 0.67 inch. Soil dry before rain. Corn 44 inches high, very poor.

<sup>10</sup> Total rainfall for storm of Aug. 11, 0.78 inch. Soil dry before rain. Corn 44 inches high, very poor.

<sup>11</sup> Total rainfall for storm of Oct. 8, 0.20 inch. Soil dry before rain. Corn remained on field.

<sup>12</sup> Run-off from melting snow.

<sup>13</sup> Total rainfall for storm of May 17, 1.29 inches. Soil moist before rain. Oats in good condition, 8 inches high. Soil well protected.

<sup>14</sup> Total rainfall for storm of June 8, 1.16 inches. Soil dry before rain. Oats 15 inches high, headed, and in fair condition.

TABLE 37.—Run-off from watershed 10—H, April 20, 1939, to December 31, 1940

LOCATION: Latitude 40°15'58", longitude 98°22'43".

#### PHYSICAL CHARACTERISTICS:

Drainage area.—3.98 acres.

Length of principal watercourse.—390 feet.

Topography.—Undulating, well drained.

Slope.—Average slope is 3.9 percent. 5 percent of the watershed has a slope of less than 2 percent; 60 percent, 2 to 5 percent and 35 percent, 5 to 8 percent.

Erosion condition.—No depressions or gullies. The area has lost less than 25 percent of the topsoil.

Soil.—Hastings silt loam, 100 percent.

#### LAND USE AND VEGETAL COVER:

Land use distribution.—Cultivated land, 100 percent.

Vegetal cover and soil condition.—The crop for 1939 was corn planted on the contour; for 1940 oats planted in straight rows. Cultural operations in 1939 were as follows:

April 25, single-disked on contour.

May 12-13, corn planted on contour with lister.

June 3-5, corn cultivated with go-dig cultivator.

June 14-17, corn cultivated with go-dig cultivator.

June 29, corn cultivated with shovel cultivator.

The corn was a complete failure for both forage and grain.

At maturity the stalks were about 44 inches high. They were left on the land.

Cultural operations in 1940 were as follows:

March 27, double-disked in straight lines.

March 30, oats planted in straight rows with grain drill.

June 29, oats harvested. Yield 6.12 bushels an acre.

July 27, plowed on the contour about 5 inches deep with moldboard plow.

September 17, harrowed on the contour with peg-tooth harrow.

September 26, planted on the contour to winter wheat with grain drill.

The wheat sprouted and thrived finally reaching a height of 3 inches at the end of the season.

#### MEASUREMENTS:

Precipitation.—Rainfall was measured at recording rain gage B28R (fig. 2). Snowfall was measured by weighing and recording rain and snow gages and by cooperative observers' measurements. Snow inventory on the watershed was obtained by inspection.



TABLE 37.—Run-off from watershed 10—H, April 20, 1939, to December 31, 1940—Continued

Run-off.—Run-off was measured by an H flume 3 feet deep.

Changes in instrumentation during period.—None.

## SUMMARY OF RECORDS:

Run-off.—Annual run-off amount 1940, 0.024 inch. Maximum

rate of run-off 1939, 0.535 inch per hour, August 11; maxi-

mum rate 1940, 0.050 inch per hour, June 8.

Date and time				Instantaneous rate of run-off		Accumulated run-off	Date and time				Instantaneous rate of run-off		Accumulated run-off	Date and time				Instantaneous rate of run-off		Accumulated run-off							
1939							1939							1939							1940						
June 20 <sup>1</sup>							June 20							Aug. 11							May 17						
p. m.		Second-foot	Inches per hour	Inches	p. m.		Second-foot	Inches per hour	Inches	p. m.		Second-foot	Inches per hour	Inches	a. m.		Second-foot	Inches per hour	Inches								
1:31-----		0	0	0	4:51-----		0.03	0.0078	0.0103	10:01-----		0.85	0.212	0.0107	2:49-----		0.01	0.0036	0.0047								
:32-----	.77	.192	.0016		:52-----	.03	.0070	.0104		:02-----	.72	.180	.0140		:50-----	.01	.0034	.0048									
:33-----	.19	.0473	.0036		:53-----	.02	.0052	.0105		:03-----	.60	.148	.0167		:55-----	.01	.0015	.0050									
:34-----	.20	.0491	.0044		:54-----	.01	.0018	.0106		:04-----	.48	.118	.0189		3:00-----	T	.0004	.0051									
:35-----	.21	.0586	.0052		:55-----	.02	.0047	.0107		:05-----	.40	.0997	.0207		:15-----	T	T										
:36-----	.18	.0441	.0060		:56-----	.03	.0081	.0108		:06-----	.36	.0887	.0223		4:00-----	T	T										
:37-----	.19	.0481	.0068		:57-----	.03	.0077	.0109		:07-----	.36	.0887	.0238		5:00-----	T	.0002	.0052									
:38-----	.20	.0504	.0076		:58-----	.03	.0074	.0110		:08-----	.26	.0648	.0251		:15-----	.01	.0013	.0054									
:39-----	.21	.0526	.0085		:59-----	.03	.0071	.0111		:09-----	.18	.0456	.0260		:20-----	T	.0011	.0055									
:40-----	.18	.0444	.0093		5:00-----	.03	.0068	.0112		:10-----	.14	.0354	.0267		:25-----	T	.0008	.0056									
:41-----	.15	.0367	.0100		:01-----	.03	.0064	.0113		:11-----	.13	.0331	.0273		:30-----	T	.0008	.0057									
:42-----	.15	.0376	.0106		:02-----	.02	.0061	.0114		:12-----	.12	.0304	.0278		:40-----	T	.0005	.0058									
:43-----	.11	.0282	.0111		:03-----	.02	.0058	.0115		:13-----	.10	.0237	.0282		:50-----	T	T										
:44-----	.11	.0282	.0116		:04-----	.02	.0055	.0116		:14-----	.09	.0214	.0286		6:00-----	T	T										
:45-----	.11	.0282	.0121		:05-----	.02	.0052	.0117		:15-----	.07	.0182	.0289		:10-----	0	0	.0058									
:46-----	.09	.0220	.0125		:06-----	.02	.0048	.0118		:16-----	.06	.0162	.0292														
:47-----	.19	.0214	.0129		:07-----	.02	.0046	.0119		:17-----	.06	.0150	.0295														
:48-----	.08	.0210	.0133		:08-----	.02	.0043	.0120		:18-----	.05	.0120	.0297		June 8 <sup>5</sup>												
:49-----	.08	.0205	.0136		:09-----	.02	.0040	.0121		:19-----	.04	.0102	.0299		p. m.												
:50-----	.07	.0170	.0139		:10-----	.01	.0037	.0122		:20-----	.03	.0085	.0301		8:13-----	0	0	0									
:51-----	.05	.0131	.0141		:11-----	.01	.0035	.0123		:21-----	.02	.0057	.0302		:14-----	T	.0011										
:52-----	.05	.0122	.0143		:12-----	.01	.0032	.0124		:22-----	.02	.0047	.0303		:15-----	T	.0008										
:53-----	.05	.0115	.0145		:13-----	.01	.0029			:23-----	.02	.0055	.0304		:16-----	T	.0006										
:54-----	.04	.0104	.0147		:14-----	.01	.0026			:24-----	.02	.0062	.0305		:17-----	T	.0005										
:55-----	.04	.0095	.0149		:15-----	.01	.0024			:25-----	.02	.0057	.0306		:18-----	T	.0005										
:56-----	.04	.0089	.0151		:16-----	.01	.0022			:26-----	.02	.0052	.0307		:19-----	T	.0005										
:57-----	.03	.0079	.0152		:17-----	.01	.0019			:27-----	.02	.0050	.0308		:20-----	T	.0011										
:58-----	.03	.0070	.0153		:18-----	.01	.0016			:28-----	.02	.0047	.0309		:25-----	.01	.0015	.0001									
:59-----	.03	.0063	.0154		:19-----	.01	.0014			:29-----	.02	.0051	.0310		:26-----	T	.0011										
2:00-----	.04	.0088	.0155		:20-----	T	.0011			:30-----	0	0	.0310		:27-----	.03	.0006	.0002									
:01-----	.05	.0117	.0157		:21-----	T	.0009			1940																	
:02-----	.05	.0114	.0159		:22-----	T	.0007			May 17 <sup>4</sup>																	
:03-----	.04	.0110	.0161		:23-----	T	.0005			a. m.					:28-----	.08	.0191	.0004									
:04-----	.04	.0106	.0163		:24-----	T	.0002			2:10-----	0	0	0		:29-----	.11	.0282	.0008									
:05-----	.04	.0102	.0165		:25-----	T	T			:11-----	T	.0002			:30-----	.14	.0361	.0013									
:06-----	.04	.0099	.0167		:26-----	0	0	.0126		:12-----	T	T			:31-----	.17	.0434	.0020									
:07-----	.04	.0095	.0169		June 21 <sup>2</sup>					:13-----	T	T			:32-----	.19	.0464	.0027									
:08-----	.04	.0091	.0171		p. m.					:14-----	T	.0002			:33-----	.19	.0473	.0035									
:09-----	.04	.0088	.0173		7:48-----	0	0	0		:15-----	T	.0002			:34-----	.19	.0464	.0043									
:10-----	.03	.0084	.0174		:49-----	.31	.0770	.0006		:16-----	T	.0002			:35-----	.18	.0449	.0051									
:11-----	.03	.0081	.0175		:50-----	.02	.0043	.0013		:17-----	T	T			:36-----	.17	.0434	.0058									
:12-----	.03	.0077	.0176		:51-----	0	0	.0013		:18-----	T	T			:37-----	.17	.0434	.0072									
:13-----	.03	.0074	.0177		:52-----	0	0	.0013		:19-----	T	T			:38-----	.18	.0449	.0079									
:14-----	.03	.0071	.0178		:53-----	0	0	.0013		:20-----	T	T			:39-----	.18	.0449	.0086									
:15-----	.02	.0043	.0179		:54-----	.15	.0378	.0016		:21-----	T	T			:40-----	.18	.0449	.0094									
:16-----	T	.0011			:55-----	.25	.0622	.0024		:22-----	T	.0008			:41-----	.19	.0481	.0094									
:17-----	T	.0005			:56-----	.13	.0323	.0032		:23-----	T	.0011			:42-----	.19	.0481	.0102									
:18-----	0	0	.0179		:57-----	.07	.0169	.0036		:24-----	.01	.0015			:43-----	.20	.0498	.0110									
4:28-----	0	0	0		:58-----	.03	.0033	.0032		:25-----	.02	.0041	.0002		:44-----	.19	.0464	.0118									
:29-----	.38	.0956	.0008		:59-----	.07	.0169	.0036		:26-----	.03	.0086	.0003		:45-----	.17	.0419	.0125									
:30-----	.08	.0198	.0018		8:00-----	.02	.0058	.0038		:27-----	.05	.0117	.0005		:46-----	.15	.0374	.0132									
:31-----	.07	.0164	.0021		:01-----	.02	.0058	.0039		:28-----	.06	.0152	.0007		:47-----	.13	.0319	.0138									
:32-----	.05	.0124	.0023		:02-----	.02	.0058	.0040		:29-----	.07	.0171	.0010		:48-----	.10	.0257	.0143									
:33-----	.05	.0130	.0025		:03-----	.02	.0058	.0041		:30-----	.07	.0175	.0013		:49-----	.09	.0234	.0147									
:34-----	.05	.0137	.0027		:04-----	.02	.0058	.0042		:31-----	.07	.0171	.0016		:50-----	.09	.0223	.0151									
:35-----	.08	.0200	.0030		:05-----	.02	.0058	.0043		:32-----	.06	.0161	.0019		:51-----	.08	.0201	.0155									
:36-----	.11	.0275	.0034		:06-----	.02	.0058	.0044		:33-----	.06	.0152	.0022		:52-----	.08	.0191	.0158									
:37-----	.17	.0416	.0040		:07-----	.02	.0058	.0045		:34-----	.06	.0143	.0024		:53-----	.07	.0171	.0161									
:38-----	.23	.0577	.0048		:08-----	.02	.0058	.0046		:35-----	.05	.0134	.0026		:54-----	.06	.0143	.0164									
:39-----	.20	.0491	.0057		:09-----	.02	.0058	.0047		:36-----	.05	.0126	.0028		:55-----	.05	.0117	.0166									
:40-----	.13	.0321	.0064		:10-----	.02	.0058	.0048		:37-----	.05	.0117	.0030		:56-----	.04	.0101	.0168									
:41-----	.11	.0268	.0069		:11-----	T	.0009	.0049		:38-----	.04	.0109	.0032		:57-----	.03	.0086	.0170									
:42-----	.11	.0276	.0074		:12-----	T	.0007			:39-----	.04	.0101	.0034		:58-----	.03	.0086	.0171									
:43-----	.11	.0286	.0079		:13-----	T	.0005			:40-----	.04	.0094	.0036		:59-----	.03	.0079	.0172									
:44-----	.07	.0171	.0083		:14-----	T	.0002			:41-----	.04	.0094	.0038		9:00-----	.03	.0065	.0173									
:45-----	.07	.0171	.0086		:15-----	T	T			:42-----	.03	.0086	.0040		:01-----	.02	.0058	.0174									
:46-----	.07	.0171	.0089		:16-----	0	0	.0049		:43-----	.03	.0072	.0041		:02-----	.02	.0052	.0175									
:47-----	.07	.0171	.0092		Aug. 11 <sup>3</sup>					:44-----	.03	.0072	.0042		:03-----	.02	.0046	.0176									
:48-----	.07	.0171	.0095		p. m.					:45-----	.02	.0062	.0043		:04-----	.01	.0036	.0178									
:49-----	.07	.0171	.0098		9:59-----	0	0	0		:46-----	.02	.0058	.0044		:10-----	.01	.0015	.0180									
:50-----	.07	.0171	.0101		10:00-----	2.15	.535	.0045		:47-----	.02	.0046	.0045		:15-----	T	.0005	.0181									
										:48-----	.02	.0041	.0046		:30-----	T	T										
															10:00-----	0	0	.0181									

<sup>1</sup> Total rainfall for storm of June 20, 1.23 inches. Soil moist before rain. Corn 15 inches high in rows on the contour and 42 inches apart. Very little breaking over of the cultivator furrows, cultivated June 14-19.<sup>2</sup> Total rainfall for storm of June 21, 0.24 inch. Soil wet and plastic before rain.<sup>3</sup> Total rainfall for storm of Aug. 11, 0.78 inch. Soil dry before rain. Corn 44 inches high, very poor.<sup>4</sup> Total rainfall for storm of May 17, 1.29 inches. Soil moist before rain. Oats in good condition, 6 inches high. Soil quite well protected.<sup>5</sup> Total rainfall for storm of June 8, 1.16 inches. Soil dry before rain. Oats 13 inches high, headed, and in fair condition.



TABLE 38.—Run-off from watershed 11-H, April 20, 1939, to December 31, 1940

LOCATION: Latitude 40°15'55'', longitude 98°22'49''.

## PHYSICAL CHARACTERISTICS:

Drainage area.—3.85 acres.

Length of principal watercourse.—600 feet.

Topography.—Undulating, well drained.

Slope.—Average slope is 4.5 percent. 16 percent of the watershed has a slope of less than 2 percent; 37 percent, 2 to 5 percent; 42 percent, 5 to 8 percent; and 5 percent has a slope of 8 to 12 percent.

Erosion condition.—No depressions or gullies. 91 percent of the area has lost 25 to 50 percent of the topsoil. 9 percent of the area has lost less than 25 percent of the topsoil.

Soil.—Hastings silt loam, 100 percent.

## LAND USE AND VEGETAL COVER:

Land use distribution.—Cultivated land, 100 percent.

Vegetal cover and soil condition.—The crop for 1939 was oats planted in straight rows. Cultural operations in 1939 were as follows:

March 22, double-disked north and south:

April 4-5, seeded to oats uphill and downhill.

June 23, oats harvested. Yield 18.4 bushels an acre.

Straw at maturity about 12 inches high.

July 22, plowed on contour with moldboard plow.

August 21, double-disked on contour.

August 22, harrowed on contour with peg-tooth harrow.

September 20, seeded to wheat on contour.

Much of the wheat did not sprout. That which sprouted was too poor to harvest.

Cultural operations in 1940 were as follows:

July 27, tilled on the contour about 6 inches deep with wide-shovel cultivator in order to control weeds.

August 28, tilled on the contour about 6 inches deep with wide-shovel cultivator in order to control weeds.

## MEASUREMENTS:

Precipitation.—Rainfall was measured at recording rain gage B28R (fig. 2). Snowfall was measured by weighing and recording rain and snow gages and by cooperative observers' measurements. Snow inventory on the watershed was obtained by inspection.

Run-off.—Run-off was measured by an H flume 3 feet deep.

Changes in instrumentation during period.—None.

## SUMMARY OF RECORDS:

Run-off.—Annual run-off amount 1940, 0.252 inch. Maximum rate of run-off 1939, 0.503 inch per hour, August 11; maximum rate 1940, 0.518 inch per hour, June 8.

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1939				1939				1939				1940			
June 15 <sup>1</sup>				June 20				June 20				May 17 <sup>5</sup>			
a. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches
3:28-----	0	0	0	1:49-----	0.26	0.0659	0.0596	4:58-----	0.03	0.0080	0.0253	2:07-----	0	0	0
:29-----	.79	.204	.0017	:50-----	.18	.0474	.0605	:59-----	.03	.0075	.0254	:10-----	T	T	
:30-----	.25	.0641	.0039	:51-----	.10	.0268	.0611	5:00-----	.02	.0052	.0255	:20-----	T	T	
:31-----	.25	.0651	.0050	:52-----	.06	.0162	.0615	:01-----	.01	.0028	.0256	:21-----	T	T	
:32-----	.24	.0628	.0061	:53-----	.07	.0191	.0618	:02-----	T	.0004		:22-----	T	T	
:33-----	.26	.0672	.0072	:54-----	.12	.0304	.0622	:03-----	0	0	.0256	:23-----	.02	.0054	
:34-----	.24	.0613	.0083	:55-----	.08	.0211	.0626					:24-----	.15	.0381	.0004
:35-----	.19	.0489	.0092	:56-----	.03	.0088	.0628	June 21 <sup>3</sup>				:25-----	.47	.122	.0017
:36-----	.18	.0458	.0100	:57-----	.04	.0090	.0629	p. m.				:26-----	.61	.156	.0040
:37-----	.13	.0345	.0107	:58-----	.05	.0131	.0631	7:54-----	0	0	0	:27-----	.70	.179	.0068
:38-----	.10	.0247	.0112	:59-----	0	0	.0632	:55-----	.79	.202	.0017	:28-----	.78	.202	.0100
:39-----	.09	.0234	.0116	2:00-----	0	0	.0632	:56-----	.32	.0835	.0041	:29-----	.82	.211	.0134
:40-----	.07	.0170	.0119	:01-----	.03	.0080	.0633	:57-----	.34	.0886	.0055	:30-----	.79	.203	.0168
:41-----	.03	.0075	.0121	:02-----	.03	.0075	.0634	:58-----	.34	.0887	.0070	:31-----	.74	.189	.0201
:42-----	.02	.0052	.0122	:03-----	.02	.0052	.0635	:59-----	.30	.0768	.0084	:32-----	.64	.166	.0231
:43-----	.01	.0028	.0123	:04-----	.01	.0028	.0636	8:00-----	.23	.0603	.0095	:33-----	.60	.156	.0258
:44-----	T	.0004		:05-----	T	.0004		:01-----	.25	.0652	.0105	:34-----	.56	.144	.0283
:45-----	0	0	.0123	:06-----	0	0	.0636	:02-----	.27	.0701	.0116	:35-----	.52	.133	.0306
June 20 <sup>2</sup>				4:26-----	0	0	0	:03-----	.17	.0433	.0125	:36-----	.49	.123	.0327
p. m.				:27-----	.51	.131	.0011	:04-----	.10	.0252	.0131	:37-----	.46	.118	.0347
1:19-----	0	0	0	:28-----	.06	.0164	.0023	:05-----	.12	.0312	.0136	:38-----	.43	.111	.0367
:20-----	.85	.219	.0018	:29-----	.07	.0175	.0026	:06-----	.08	.0209	.0140	:39-----	.46	.118	.0387
:21-----	.38	.0976	.0044	:30-----	.06	.0148	.0029	:07-----	.08	.0206	.0143	:40-----	.44	.114	.0406
:22-----	.33	.0841	.0059	:31-----	.04	.0116	.0031	:08-----	.08	.0196	.0146	:41-----	.42	.108	.0424
:23-----	.36	.0932	.0074	:32-----	.06	.0162	.0033	:09-----	.07	.0180	.0149	:42-----	.40	.103	.0442
:24-----	.43	.112	.0091	:33-----	.12	.0303	.0037	:10-----	.06	.0152	.0152	:43-----	.37	.0963	.0459
:25-----	.62	.159	.0114	:34-----	.16	.0418	.0043	:11-----	.05	.0124	.0154	:44-----	.34	.0889	.0474
:26-----	.69	.179	.0142	:35-----	.22	.0556	.0051	:12-----	.04	.0106	.0156	:45-----	.32	.0829	.0488
:27-----	.66	.169	.0171	:36-----	.34	.0866	.0063	:13-----	.03	.0084	.0158	:46-----	.30	.0786	.0501
:28-----	.66	.171	.0199	:37-----	.39	.0994	.0079	:14-----	.03	.0065	.0159	:47-----	.27	.0698	.0513
:29-----	.63	.162	.0227	:38-----	.35	.0896	.0095	:15-----	.02	.0048	.0160	:48-----	.23	.0587	.0524
:30-----	.68	.175	.0255	:39-----	.36	.0930	.0110	:16-----	.01	.0030	.0161	:49-----	.22	.0562	.0534
:31-----	.66	.170	.0284	:40-----	.34	.0884	.0125	:17-----	.01	.0013		:50-----	.18	.0453	.0542
:32-----	.61	.158	.0311	:41-----	.30	.0768	.0139	:18-----	0	0	.0161	:51-----	.16	.0402	.0549
:33-----	.60	.154	.0337	:42-----	.29	.0752	.0152	Aug. 11 <sup>4</sup>				:52-----	.13	.0345	.0555
:34-----	.57	.147	.0362	:43-----	.28	.0711	.0164	p. m.				:53-----	.12	.0299	.0560
:35-----	.50	.130	.0385	:44-----	.28	.0716	.0176	9:59-----	0	0	0	:54-----	.11	.0278	.0565
:36-----	.45	.115	.0405	:45-----	.22	.0567	.0187	10:00-----	1.95	.503	.0042	:55-----	.10	.0252	.0569
:37-----	.44	.113	.0424	:46-----	.22	.0567	.0196	:01-----	.86	.220	.0102	:56-----	.09	.0229	.0573
:38-----	.42	.109	.0442	:47-----	.22	.0567	.0205	:02-----	.57	.147	.0133	:57-----	.08	.0208	.0577
:39-----	.40	.103	.0460	:48-----	.18	.0466	.0214	:03-----	.43	.111	.0155	:58-----	.07	.0193	.0580
:40-----	.39	.100	.0477	:49-----	.18	.0453	.0222	:04-----	.40	.104	.0173	:59-----	.08	.0195	.0583
:41-----	.38	.0971	.0493	:50-----	.15	.0376	.0229	:05-----	.35	.0894	.0189	3:00-----	.07	.0181	.0586
:42-----	.35	.0907	.0509	:51-----	.10	.0265	.0234	:06-----	.13	.0335	.0199	:01-----	.07	.0170	.0589
:43-----	.33	.0858	.0524	:52-----	.09	.0237	.0238	:07-----	.04	.0095	.0203	:02-----	.06	.0158	.0592
:44-----	.33	.0840	.0538	:53-----	.08	.0211	.0242	:08-----	.05	.0134	.0205	:03-----	.05	.0137	.0594
:45-----	.29	.0747	.0551	:54-----	.07	.0188	.0245	:09-----	.07	.0172	.0208	:04-----	.04	.0121	.0596
:46-----	.25	.0646	.0563	:55-----	.05	.0134	.0248	:10-----	.02	.0062	.0210	:05-----	.04	.0111	.0598
:47-----	.25	.0646	.0574	:56-----	.04	.0095	.0250	:11-----	0	0	.0211	:06-----	.04	.0096	.0600
:48-----	.26	.0683	.0585	:57-----	.03	.0088	.0252					:07-----	.04	.0093	.0602

See footnotes at end of table.



TABLE 38.—Run-off from watershed 11-H, April 20, 1939, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1940				1940				1940				1940			
May 17				May 17				May 17				June 8 <sup>6</sup>			
a. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches
3:08-----	0.03	0.0090	0.0604	4:45-----	0.08	0.0200	0.0761	6:15-----	T	0.0002	0.1079	8:46-----	0.73	0.188	0.1201
:09-----	0.03	0.0085	0.0605	:50-----	0.08	0.0221	0.0779	:30-----	T	T		:47-----	.66	.170	.1231
:10-----	0.03	0.0082	0.0606	:55-----	0.10	0.0248	0.0799	:35-----	T	T		:48-----	.59	.151	.1258
:11-----	0.03	0.0078	0.0607	:56-----	0.10	0.0260	0.0803	:40-----	0	0	.1079	:49-----	.51	.132	.1282
:12-----	0.03	0.0070	0.0608	:57-----	0.11	0.0273	0.0807					:50-----	.43	.111	.1302
:13-----	0.02	0.0063	0.0609	:58-----	0.12	0.0304	0.0812					:51-----	.38	.0976	.1319
:14-----	0.02	0.0060	0.0610	:59-----	0.13	0.0335	0.0817					:52-----	.33	.0840	.1334
:15-----	0.02	0.0054	0.0611	5:00-----	0.15	0.0381	0.0823					:53-----	.28	.0711	.1347
:16-----	0.02	0.0048	0.0612	:01-----	0.16	0.0420	0.0830	8:12-----	0	0	0	:54-----	.24	.0611	.1358
:17-----	0.02	0.0046	0.0613	:02-----	0.18	0.0451	0.0837	:13-----	T	.0010		:55-----	.21	.0549	.1368
:18-----	0.02	0.0046	0.0614	:03-----	0.19	0.0479	0.0845	:14-----	T	.0005		:56-----	.17	.0443	.1376
:19-----	0.01	0.0038	0.0615	:04-----	0.20	0.0513	0.0853	:15-----	T	.0005		:57-----	.14	.0366	.1383
:20-----	0.01	0.0037	0.0616	:05-----	0.21	0.0541	0.0862	:16-----	T	.0001		:58-----	.12	.0319	.1389
:25-----	0.01	0.0026	0.0619	:06-----	0.21	0.0541	0.0871	:17-----	T	T		:59-----	.11	.0273	.1394
:30-----	0.01	0.0027	0.0621	:07-----	0.21	0.0551	0.0880	:18-----	T	T		9:00-----	.10	.0258	.1398
:35-----	0.01	0.0021	0.0623	:08-----	0.21	0.0536	0.0889	:19-----	T	.0007		:01-----	.10	.0248	.1402
:40-----	0.01	0.0022	0.0625	:09-----	0.20	0.0523	0.0898	:20-----	.01	.0014		:02-----	.09	.0238	.1406
:45-----	0.01	0.0028	0.0627	:10-----	0.19	0.0482	0.0906	:22-----	T	.0012		:03-----	.09	.0231	.1410
:50-----	0.02	0.0039	0.0630	:11-----	0.17	0.0443	0.0914	:23-----	T	.0012		:04-----	.07	.0184	.1413
:55-----	0.02	0.0051	0.0634	:12-----	0.15	0.0399	0.0921	:24-----	.04	.0100	.0001	:05-----	.07	.0179	.1416
:56-----	0.02	0.0061	0.0635	:13-----	0.15	0.0397	0.0928	:25-----	.33	.0858	.0009	:06-----	.06	.0154	.1419
:57-----	0.02	0.0071	0.0636	:14-----	0.15	0.0397	0.0935	:26-----	.66	.169	.0030	:07-----	.05	.0137	.1421
:58-----	0.03	0.0087	0.0637	:15-----	0.14	0.0374	0.0941	:27-----	1.07	.276	.0067	:08-----	.05	.0121	.1423
:59-----	0.04	0.0109	0.0639	:16-----	0.13	0.0337	0.0947	:28-----	1.34	.345	.0119	:09-----	.04	.0111	.1425
4:00-----	0.05	0.0141	0.0641	:17-----	0.13	0.0345	0.0953	:29-----	1.41	.366	.0179	:10-----	.04	.0096	.1427
:01-----	0.06	0.0154	0.0643	:18-----	0.13	0.0340	0.0959	:30-----	1.44	.373	.0240	:11-----	.03	.0086	.1429
:02-----	0.07	0.0178	0.0646	:19-----	0.12	0.0309	0.0964	:31-----	1.53	.394	.0304	:12-----	.03	.0071	.1430
:03-----	0.07	0.0183	0.0649	:20-----	0.12	0.0299	0.0969	:32-----	1.78	.459	.0375	:13-----	.03	.0070	.1431
:04-----	0.08	0.0193	0.0652	:21-----	0.11	0.0286	0.0974	:33-----	2.01	.518	.0456	:14-----	.02	.0061	.1432
:05-----	0.08	0.0199	0.0655	:22-----	0.11	0.0286	0.0979	:34-----	1.96	.505	.0541	:15-----	.02	.0054	.1433
:06-----	0.08	0.0197	0.0658	:23-----	0.11	0.0273	0.0984	:35-----	1.76	.453	.0621	:20-----	.01	.0033	.1437
:07-----	0.08	0.0197	0.0661	:24-----	0.10	0.0263	0.0988	:36-----	1.62	.417	.0693	:25-----	.01	.0021	.1439
:08-----	0.08	0.0195	0.0664	:25-----	0.10	0.0263	0.0992	:37-----	1.50	.386	.0760	:30-----	.01	.0014	.1441
:09-----	0.07	0.0181	0.0667	:30-----	0.09	0.0227	0.1012	:38-----	1.40	.361	.0822	:35-----	T	.0010	.1442
:10-----	0.07	0.0172	0.0670	:35-----	0.08	0.0196	0.1030	:39-----	1.34	.345	.0881	:40-----	T	.0008	.1443
:15-----	0.06	0.0166	0.0684	:40-----	0.07	0.0182	0.1046	:40-----	1.27	.327	.0937	:45-----	T	.0005	
:20-----	0.06	0.0155	0.0697	:45-----	0.04	0.0113	0.1058	:41-----	1.19	.307	.0990	:50-----	T	T	
:25-----	0.05	0.0137	0.0709	:50-----	0.03	0.0068	0.1066	:42-----	1.13	.291	.1040	:55-----	T	T	
:30-----	0.05	0.0139	0.0721					:43-----	1.05	.270	.1087	:57-----	T	T	
:35-----	0.06	0.0155	0.0733		0.02	0.0051	0.1071	:44-----	.93	.240	.1129		T	T	
:40-----	0.06	0.0164	0.0746	6:00-----	0.01	0.0032	0.1075	:45-----	.84	.216	.1167		0	0	.1443

<sup>1</sup> Total rainfall for storm of June 15, 0.60 inch. Soil moist from rain of June 12. Oats 16 inches high in straight rows.

<sup>2</sup> Total rainfall for storm of June 20, 1.23 inches. Soil moist. Oats 16 inches high, ripe. Many small gullies formed.

<sup>3</sup> Total rainfall for storm of June 21, 0.24 inch. Soil moist and plastic before rain.

<sup>4</sup> Total rainfall for storm of Aug. 11, 0.78 inch. Soil dry before rain. Watershed

plowed July 22 on the contour with moldboard plow. Volunteer oats 1 inch high cover area.

<sup>5</sup> Total rainfall for storm of May 17, 1.29 inches. Soil moist before rain. Wheat 5 inches high, very thin. Russian thistles taking over field.

<sup>6</sup> Total rainfall for storm of June 8, 1.16 inches. Soil dry before rain. Wheat all dead. Russian thistle covered most of the area.

TABLE 39.—Run-off from watershed 12-H, April 20, 1939, to December 31, 1940

LOCATION: Latitude 40°15'54", longitude 98°22'51".

#### PHYSICAL CHARACTERISTICS:

Drainage area.—3.66 acres.

Length of principal watercourse.—590 feet.

Topography.—Undulating, well drained.

Slope.—Average slope is 5.8 percent. Four percent of the watershed has a slope of less than 2 percent; 41 percent, 2 to 5 percent; 30 percent, 5 to 8 percent; 23 percent, 8 to 12 percent; and 2 percent has a slope of 12 percent or more.

Erosion condition.—There are no depressions or gullies. The area has lost 25 to 50 percent of the topsoil.

Soil.—Hastings silt loam, 100 percent.

#### LAND USE AND VEGETAL COVER:

Land use distribution.—Cultivated land, 100 percent.

Vegetal cover and soil condition.—Approximately one-quarter of the area, at the upper end of the watershed, was planted to wheat in the fall of 1938. This was allowed to remain and was harvested in 1939. The following notations for 1939 apply to the area below the wheat, which was planted to oats and on the contour. Cultural operations in 1939 were as follows:

March 22, double-disked on contour.

April 1, oats seeded on contour.

June 23, oats harvested. Oats about 12 inches high.

Yield 21.82 bushels an acre. Four inches stubble remained.

June 24, wheat harvested. Wheat about 14 inches high.

Yield 5.08 bushels an acre. Five inches stubble remained.

Cultural operations in 1940 were as follows:

April 16, single-disked in straight rows.

May 14, corn planted in straight rows 42 inches apart with lister.

June 6, corn cultivated with go-dig cultivator.

June 19, corn cultivated with go-dig cultivator.

The corn was almost a complete failure, both for forage and grain. Yield, 2,143 pounds of forage an acre and 283 pounds of grain an acre. The stalks at maturity were 4 feet high. They were left standing in the field.

#### MEASUREMENTS:

Precipitation.—Rainfall was measured at recording rain gage B28R (fig. 2). Snowfall was measured by weighing and recording rain and snow gages and by cooperative observers,



TABLE 39.—Run-off from watershed 12—H, April 20, 1939, to December 31, 1940—Continued

measurements. Snow inventory on the watershed was obtained by inspection.

Run-off.—Run-off was measured by an H flume 3 feet deep. Changes in instrumentation during period.—None.

## SUMMARY OF RECORDS:

Run-off.—Annual run-off amount 1940, 0.410 inch. Maximum rate of run-off 1939, 1.594 inches per hour, August. 11; maximum rate 1940, 1.07 inches per hour, June 8.

Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off
1939			1939			1939			1939		
June 15 <sup>1</sup>			June 20			June 21			Aug. 7		
a. m.	Second-feet	Inches per hour	p. m.	Second-feet	Inches per hour	p. m.	Second-feet	Inches per hour	p. m.	Second-feet	Inches per hour
3:30	0	0	2:34	T	0.0011	8:10	0.04	0.0107	5:50	0.02	0.0017
3:31	.72	.196	3:55	T	.0007	11	.04	.0115	5:51	.02	.0046
3:32	.65	.177	3:56	T	.0004	12	.03	.0094	5:52	.01	.0041
3:33	.75	.204	3:57	T	.0001	13	.03	.0075	5:53	.01	.0036
3:34	.73	.198	4:00	0	0	14	.02	.0059	5:54	.01	.0031
3:35	.66	.179	4:25	0	0	15	.02	.0044	5:55	.01	.0026
3:36	.61	.165	4:26	.03	.0082	16	.01	.0030	5:56	.01	.0022
3:37	.46	.126	4:27	.03	.0073	17	.01	.0017	5:57	.01	.0018
3:38	.32	.0881	4:28	.06	.0164	18	.01	.0035	5:58	.01	.0015
3:39	.31	.0851	4:29	.08	.0208	19	.02	.0060	5:59	T	.0011
3:40	.25	.0686	4:30	.08	.0208	20	.02	.0041	6:00	T	.0007
3:41	.16	.0447	4:31	.09	.0250	21	.01	.0027	6:01	T	.0004
3:42	.14	.0375	4:32	.11	.0288	22	.01	.0020	6:02	T	.0001
3:43	.11	.0305	4:33	.12	.0333	23	.01	.0018	6:03	0	0
3:44	.08	.0230	4:34	.14	.0373	24	.01	.0023			
3:45	.06	.0167	4:35	.19	.0506	25	.01	.0022	Aug. 11 <sup>6</sup>		
3:46	.04	.0107	4:36	.24	.0663	26	.01	.0022	p. m.		
3:47	.03	.0075	4:37	.36	.0977	27	.01	.0018	9:58	0	0
3:48	.01	.0018	4:38	.48	.129	28	.01	.0015	5:59	3.93	1.06
3:49	0	0	4:39	.51	.139	29	T	.0011	10:00	5.88	1.59
June 20 <sup>2</sup>			4:40	.54	.145	30	T	.0007	10:01	3.28	.888
p. m.			4:41	.55	.148	31	T	.0004	10:02	3.31	.897
1:33	0	0	4:42	.37	.0992	32	T	.0001	10:03	3.60	.977
1:34	1.02	.277	4:43	.38	.104	33	0	0	10:04	2.80	.759
1:35	.78	.211	4:44	.38	.104				10:05	2.80	.759
1:36	.71	.193	4:45	.26	.0718	June 25 <sup>4</sup>			10:06	2.55	.691
1:37	.71	.193	4:46	.25	.0669	a. m.			10:07	2.40	.650
1:38	.68	.157	4:47	.19	.0510	1:38	0	0	10:08	2.18	.591
1:39	.51	.138	4:48	.15	.0418	1:39	.06	.0162	10:09	1.89	.511
1:40	.55	.149	4:49	.19	.0510	1:40	.03	.0082	10:10	1.42	.384
1:41	.65	.176	4:50	.13	.0366	1:41	.03	.0072	10:11	1.21	.328
1:42	.74	.202	4:51	.08	.0225	1:42	.03	.0070	10:12	1.07	.290
1:43	.85	.230	4:52	.09	.0234	1:43	.03	.0071	10:13	.86	.233
1:44	.93	.251	4:53	.10	.0276	1:44	.03	.0075	10:14	.81	.219
1:45	.93	.252	4:54	.07	.0198	1:45	.02	.0050	10:15	.62	.169
1:46	.92	.250	4:55	.04	.0111	1:46	.02	.0050	10:16	.50	.134
1:47	.94	.256	4:56	.04	.0098	1:47	.02	.0050	10:17	.42	.115
1:48	.83	.226	4:57	.03	.0086	1:48	.02	.0050	10:18	.32	.0856
1:49	.83	.226	4:58	.02	.0061	1:49	.02	.0050	10:19	.26	.0718
1:50	.72	.196	4:59	.03	.0069	1:50	.02	.0050	10:20	.17	.0463
1:51	.74	.201	5:00	.03	.0075	1:51	.01	.0032	10:21	.14	.0390
1:52	.64	.172	5:01	.02	.0059	1:52	.01	.0030	10:22	.13	.0352
1:53	.49	.133	5:02	.02	.0044	1:53	.01	.0030	10:23	.09	.0233
1:54	.50	.134	5:03	.01	.0030	1:54	.01	.0027	10:24	.06	.0150
1:55	.50	.136	5:04	.02	.0049	1:55	.01	.0025	10:25	.02	.0050
1:56	.44	.120	5:05	.03	.0073	1:56	.01	.0023	10:26	.03	.0072
1:57	.41	.110	5:06	.02	.0055	1:57	.01	.0021	10:27	.05	.0133
1:58	.37	.100	5:07	.01	.0040	1:58	.01	.0019	10:28	.03	.0080
1:59	.37	.101	5:08	.01	.0031	1:59	.01	.0017	10:29	.01	.0040
2:00	.38	.102	5:09	.01	.0018	2:00	.01	.0015	10:30	T	.0002
2:01	.35	.0938	5:10	.01	.0017	2:01	T	.0014	10:31	.02	.0056
2:02	.32	.0881	5:11	T	.0010	2:02	T	.0013	10:32	.02	.0053
2:03	.31	.0851	5:12	T	.0008	2:03	T	.0011	10:33	T	.0011
2:04	.30	.0821	5:13	T	.0008	2:04	T	.0010	10:34	.03	.0075
2:05	.26	.0702	5:14	T	.0012	2:05	T	.0008	10:35	.02	.0059
2:06	.21	.0558	5:15	.01	.0016	2:06	T	.0007	10:36	.02	.0044
2:07	.16	.0442	5:16	.01	.0018	2:07	T	.0005	10:37	.01	.0030
2:08	.11	.0305	5:17	.01	.0014	2:08	T	.0004	10:38	.01	.0017
2:09	.08	.0230	5:18	T	.0007	2:09	T	.0003	10:39	T	.0006
2:10	.08	.0225	5:19	0	0	2:10	T	.0001	10:40	T	.0012
2:11	.09	.0234	June 21 <sup>3</sup>			2:11	T	.0003	10:41	.01	.0027
2:12	.07	.0191	p. m.			2:12	T	.0006	10:42	.01	.0020
2:13	.06	.0155	7:50	0	0	2:13	T	.0005	10:43	.01	.0018
2:14	.03	.0072	7:51	.20	.0544	2:14	T	.0004	10:44	.01	.0023
2:15	.01	.0030	7:52	.28	.0769	2:15	T	.0003	10:45	T	.0008
2:16	.02	.0056	7:53	.45	.122	2:16	T	.0002	10:46	0	0
2:17	.01	.0032	7:54	.51	.139	2:17	T	.0001	1940		
2:18	T	.0006	7:55	.54	.146	2:18	T	.0001	Feb. 29 <sup>7</sup>		
2:19	.01	.0019	7:56	.54	.146	2:19	T	.0001	p. m.		
2:20	.03	.0078	7:57	.48	.130	2:20	T	.0001	1:40	0	0
2:21	.04	.0106	7:58	.37	.101	2:21	T	.0001	1:45	T	.0006
2:22	.02	.0065	7:59	.30	.0802	Aug. 7 <sup>8</sup>			2:00	T	.0009
2:23	.01	.0017	8:00	.24	.0645	p. m.			3:00	.01	.0016
2:24	T	.0006	8:01	.21	.0678	5:42	0	0	4:00	.01	.0020
2:25	.01	.0023	8:02	.13	.0366	5:43	.18	.0488	5:00	.01	.0024
2:26	.02	.0046	8:03	.10	.0282	5:44	.06	.0159	6:00	.01	.0028
2:27	.01	.0030	8:04	.13	.0363	5:45	.06	.0159	7:00	.01	.0020
2:28	.01	.0017	8:05	.08	.0225	5:46	.04	.0110	8:00	T	.0012
2:29	T	.0010	8:06	.06	.0163	5:47	.03	.0084	9:00	T	.0006
2:30	T	.0012	8:07	.09	.0247	5:48	.03	.0081	10:00	T	.0012
2:31	.01	.0022	8:08	.07	.0193	5:49	.03	.0078	11:00	0	0
2:32	.01	.0018	8:09	.05	.0124						
2:33	.01	.0015		.03	.0093						

See footnotes at end of table, p. 91.



TABLE 39.—Run-off from watershed 12-H, April 20, 1939, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off
1940			1940			1940			1940		
Mar. 1 <sup>s</sup>			Mar. 7 <sup>7</sup>			Mar. 9			June 8 <sup>10</sup>		
a. m.	Second-foot	Inches per hour	p. m.	Second-foot	Inches per hour	p. m.	Second-foot	Inches per hour	p. m.	Second-foot	Inches per hour
10:20-----	0	0	12:48-----	0	0	4:45-----	0.01	0.0150	8:12-----	0	0
11:00-----	T	T	1:49-----	T	.0003	5:00-----	T	.0012	13-----	.01	.0020
12:00-----	T	T	1:50-----	T	.0003	1:15-----	T	.0012	14-----	T	.0010
			1:55-----	T	.0005	3:00-----	T	.0011	15-----	T	.0012
p. m.			1:00-----	T	.0006	3:45-----	T	.0009	16-----	T	.0012
1:00-----	T	.0006	1:15-----	T	.0006	6:00-----	T	.0006	17-----	T	.0006
2:00-----	T	.0006	1:30-----	T	.0009	7:00-----	T	.0003	18-----	T	.0006
3:00-----	T	.0006	1:45-----	T	.0012	8:00-----	0	0	19-----	T	.0006
4:00-----	T	.0004	2:00-----	.01	.0016				20-----	.01	.0014
5:00-----	T	.0006	2:15-----	.01	.0020				21-----	.01	.0018
6:00-----	T	.0006	2:30-----	.01	.0020				22-----	.01	.0020
7:00-----	T	.0006	2:45-----	.01	.0024	Mar. 15 <sup>7</sup>			23-----	.01	.0033
8:00-----	T	.0034	3:00-----	.01	.0028	p. m.			24-----	.08	.0224
9:00-----	0	0	3:15-----	.01	.0034	12:50-----	0	0	25-----	.30	.0826
			3:30-----	.01	.0037	1:51-----	.01	.0020	26-----	.64	.174
Mar. 3 <sup>7</sup>			3:45-----	.01	.0039	5:55-----	.01	.0028	27-----	.60	.163
p. m.			4:00-----	.01	.0039	1:00-----	.01	.0039	28-----	.50	.136
5:43-----	0	0	5:00-----	.01	.0039	1:10-----	.01	.0039	29-----	.46	.125
5:44-----	T	T	6:00-----	.01	.0034	2:00-----	.02	.0044	30-----	1.92	.520
5:45-----	T	.0006	7:00-----	.01	.0024	3:00-----	.02	.0057	31-----	3.94	1.07
5:50-----	.01	.0020	8:00-----	T	.0012	4:00-----	.02	.0057	32-----	3.20	.867
5:55-----	.01	.0024	9:00-----	T	.0006	4:45-----	.02	.0063	33-----	2.38	.645
6:00-----	.01	.0024	10:00-----	T	T	5:00-----	.02	.0061	34-----	2.01	.545
7:00-----	.01	.0020	11:00-----	0	0	6:00-----	.02	.0057	35-----	1.58	.428
8:00-----	T	.0012				7:00-----	.02	.0050	36-----	1.39	.377
9:00-----	T	.0006	Mar. 8 <sup>7</sup>			8:00-----	.01	.0039	37-----	1.36	.368
10:00-----	T	T	a. m.			9:00-----	.01	.0028	38-----	1.36	.368
11:00-----	0	0	9:42-----	0	0	10:00-----	.01	.0020	39-----	1.39	.377
			9:44-----	T	T	11:00-----	.01	.0018	40-----	1.42	.385
Mar. 4 <sup>7</sup>			9:45-----	T	T				41-----	1.50	.406
a. m.						5:00-----	T	.0012	42-----	1.50	.406
11:30-----	0	0	p. m.			6:00-----	T	.0006	43-----	1.42	.385
12:00-----	T	T	1:00-----	T	T	7:00-----	T	.0003	44-----	1.32	.358
			1:15-----	T	.0003	8:00-----	T	T	45-----	1.16	.314
p. m.			1:30-----	T	.0006	9:00-----	T	T	46-----	.90	.245
1:00-----	T	T	1:45-----	T	.0009	10:00-----	0	0	47-----	.88	.238
2:00-----	T	.0003	2:00-----	.01	.0016				48-----	.87	.235
3:00-----	T	.0012	3:00-----	.01	.0020	Mar. 16 <sup>7</sup>			49-----	.81	.218
4:00-----	.01	.0028	3:30-----	.01	.0024	a. m.			50-----	.68	.185
5:00-----	.02	.0050	3:45-----	.01	.0024	10:57-----	0	0	51-----	.56	.153
6:00-----	.02	.0063	4:00-----	.01	.0020	11:00-----	T	.0006	52-----	.51	.138
7:00-----	.03	.0078	4:15-----	.01	.0020	1:00-----	T	.0008	53-----	.45	.122
8:00-----	.02	.0063	4:30-----	.01	.0020	1:15-----	T	.0009	54-----	.33	.0892
9:00-----	.02	.0050	4:45-----	.01	.0016	1:30-----	T	.0009	55-----	.35	.0948
10:00-----	.01	.0039	5:00-----	T	.0012	1:45-----	T	.0009	56-----	.30	.0824
11:00-----	.01	.0028	5:15-----	T	.0006	2:00-----	T	.0009	57-----	.28	.0756
12:00-----	0	0	5:30-----	0	0	2:15-----	0	0	58-----	.23	.0620
						2:30-----	0	0	59-----	.23	.0629
Mar. 5 <sup>7</sup>						2:45-----	0	0	60-----	.20	.0547
a. m.						3:00-----	0	0	61-----	.18	.0477
11:30-----	0	0	a. m.						62-----	.16	.0447
12:00-----	T	T	11:12-----	0	0	May 17 <sup>9</sup>			63-----	.15	.0415
			11:13-----	T	T	a. m.			64-----	.13	.0352
p. m.			11:15-----	T	T	2:11-----	0	0	65-----	.12	.0314
1:00-----	T	T	11:30-----	T	.0001	2:12-----	T	T	66-----	.11	.0290
2:00-----	T	.0006	11:45-----	T	.0006	2:15-----	T	T	67-----	.10	.0274
3:00-----	.01	.0039	12:00-----	T	.0006	2:20-----	T	.0003	68-----	.09	.0254
4:00-----	.02	.0063				2:25-----	T	.0006	69-----	.09	.0250
5:00-----	.02	.0066	p. m.			2:30-----	T	.0003	70-----	.09	.0250
6:00-----	.02	.0063	12:05-----	T	.0012	2:35-----	T	.0003	71-----	.09	.0245
7:00-----	.02	.0057	12:10-----	.01	.0018	2:40-----	0	0	72-----	.09	.0240
8:00-----	.02	.0050	12:15-----	.01	.0024	2:45-----	0	0	73-----	.08	.0226
9:00-----	.01	.0039	12:20-----	.02	.0044	2:50-----	0	0	74-----	.08	.0217
10:00-----	.01	.0028	12:25-----	.02	.0050	3:00-----	T	.0003	75-----	.08	.0208
11:00-----	.01	.0020	12:30-----	.02	.0050	3:05-----	T	.0005	76-----	.07	.0194
12:00-----	.01	.0016	12:35-----	.02	.0050	3:10-----	T	T	77-----	.07	.0184
			12:40-----	.02	.0054	3:15-----	0	0	78-----	.06	.0176
Mar. 6			12:45-----	.02	.0054	3:20-----	0	0	79-----	.06	.0165
a. m.			12:50-----	.02	.0057	3:25-----	0	0	80-----	.06	.0156
1:00-----	T	.0012	1:00-----	.02	.0057	3:30-----	T	T	81-----	.06	.0162
2:00-----	T	.0009	1:15-----	.02	.0050	3:35-----	T	T	82-----	.06	.0167
3:00-----	T	.0006	1:30-----	.02	.0044	3:40-----	T	.0001	83-----	.07	.0199
4:00-----	T	.0006	1:45-----	.01	.0039	3:45-----	T	.0001	84-----	.08	.0208
5:00-----	T	.0006	1:50-----	.01	.0037	3:50-----	T	T	85-----	.08	.0224
6:00-----	T	.0005	1:55-----	.01	.0034	3:55-----	0	0	86-----	.09	.0251
7:00-----	T	.0003	2:00-----	.01	.0028	4:00-----	0	0	87-----	.11	.0301
8:00-----	T	.0003	2:15-----	.01	.0028	4:05-----	0	0	88-----	.13	.0355
9:00-----	T	T	2:30-----	.01	.0034	4:10-----	T	T	89-----	.15	.0398
10:00-----	T	T	2:45-----	.01	.0034	4:15-----	T	.0003	90-----	.16	.0434
11:00-----	0	0	2:50-----	.01	.0028	4:20-----	T	.0003	91-----	.18	.0496
			2:55-----	.01	.0020	4:25-----	T	.0003	92-----	.18	.0493
			3:00-----	.01	.0020	4:30-----	T	.0003	93-----	.22	.0585
			3:05-----	.01	.0020	4:35-----	T	T	94-----	.22	.0583
			3:10-----	.01	.0021	4:40-----	T	T	95-----	.22	.0602
			3:15-----	.01	.0020	4:45-----	T	T	96-----	.24	.0642
			3:20-----	.01	.0020	4:50-----	T	T	97-----	.25	.0675
			3:25-----	.01	.0020	4:55-----	0	0	98-----	.22	.0604
			3:30-----	.01	.0018	5:00-----	0	0	99-----	.22	.0604
									100-----	.21	.0580

See footnotes at end of table.



TABLE 39.—Run-off from watershed 12—H, April 20, 1939, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1940				1940				1940				1940			
June 8				June 8				Sept. 24				Nov. 9			
p. m.	Second-feet	Inches per hour	Inches	p. m.	Second-feet	Inches per hour	Inches	a. m.	Second-feet	Inches per hour	Inches	a. m.	Second-feet	Inches per hour	Inches
9:42-----	0.21	0.0580	0.1998	11:45-----	0.01	0.0024	0.2190	2:39-----	0.05	0.0146	0.0022	1:15-----	T	T	
:43-----	.23	.0620	.2008	12:00-----	.01	.0022	.2196	:40-----	.04	.0110	.0024	:20-----	T	0.0012	
:44-----	.23	.0634	.2118					:41-----	.03	.0094	.0026	:25-----	T	.0009	0.0003
:45-----	.23	.0626	.2028	June 9				:42-----	.03	.0071	.0027	:30-----	T	.0006	.0004
:46-----	.23	.0623	.2038	a. m.				:43-----	.02	.0063	.0028	:35-----	T	.0005	
:47-----	.22	.0610	.2048	12:15-----	.01	.0020	.2201	:44-----	.02	.0050	.0029	:40-----	T	T	
:48-----	.21	.0574	.2058	:30-----	.01	.0020	.2206	:45-----	.02	.0044	.0030	:45-----	T	T	
:49-----	.19	.0512	.2067	:45-----	.01	.0020	.2211	:50-----	.01	.0024	.0033	:50-----	0	0	.0004
:50-----	.16	.0447	.2075	1:00-----	.01	.0018	.2216	:55-----	T	.0012	.0035	2:05-----	0	0	.0004
:51-----	.16	.0447	.2082	:30-----	.01	.0016	.2224	3:00-----	.01	.0024	.0037	:10-----	T	T	
:52-----	.14	.0366	.2089	2:00-----	T	.0012	.2231	:05-----	.01	.0024	.0039	:15-----	T	.0009	
:53-----	.12	.0325	.2095	3:00-----	T	.0009	.2241	:10-----	.01	.0039	.0042	:20-----	T	.0012	.0005
:54-----	.10	.0274	.2100	4:00-----	T	.0006	.2249	:15-----	.02	.0057	.0046	:25-----	.01	.0014	.0006
:55-----	.09	.0236	.2104	5:00-----	T	T	.2252	:20-----	.01	.0039	.0050	:30-----	T	.0006	.0007
:56-----	.07	.0201	.2108	6:00-----	T	T		:25-----	.01	.0016	.0052	:35-----	T	T	
:57-----	.07	.0184	.2111	7:00-----	0	0	.2252	:30-----	T	.0003	.0053	:40-----	T	T	
:58-----	.06	.0165	.2114					:35-----	T	T		:50-----	0	0	.0007
:59-----	.06	.0153	.2117	Sept. 24 <sup>11</sup>				:40-----	T	T		10:42-----	0	0	.0007
10:00-----	.05	.0142	.2119	a. m.				:50-----	T	.0006		:43-----	T	T	
:05-----	.03	.0093	.2129	1:50-----	0	0	0	:55-----	T	T		:44-----	T	T	
:10-----	.02	.0063	.2135	2:00-----	T	T		4:10-----	T	T		:45-----	T	T	
:15-----	.02	.0050	.2140	:10-----	T	T		:20-----	0	0	.0053	:46-----	T	.0006	
:20-----	.02	.0050	.2144	:15-----	T	.0006						:47-----	.01	.0039	
:25-----	.02	.0044	.2148	:20-----	T	T		Nov. 9 <sup>12</sup>				:48-----	.02	.0044	.0008
:30-----	.02	.0044	.2152	:29-----	T	T		a. m.				:49-----	.02	.0050	.0009
:35-----	.01	.0039	.2156	:30-----	T	.0012		12:15-----	0	0	0	:50-----	.02	.0050	.0010
:40-----	.01	.0038	.2159	:31-----	.02	.0050	.0001	:30-----	T	T		:55-----	.02	.0050	.0014
:45-----	.01	.0036	.2162	:32-----	.04	.0110	.0002	:35-----	T	T		11:00-----	.01	.0039	.0018
:50-----	.01	.0034	.2165	:33-----	.05	.0146	.0004	:40-----	T	.0009		:05-----	.01	.0028	.0021
:55-----	.01	.0031	.2168	:34-----	.06	.0156	.0007	:45-----	T	.0009		:10-----	T	.0012	.0023
11:00-----	.01	.0030	.2170	:35-----	.06	.0165	.0010	:50-----	T	.0006	.0002	:15-----	T	.0003	.0024
:15-----	.01	.0028	.2177	:36-----	.06	.0176	.0013	:55-----	T	T		:20-----	T	T	
:30-----	.01	.0027	.2184	:37-----	.06	.0165	.0016	1:00-----	T	T		:30-----	0	0	.0024
				:38-----	.06	.0162	.0019								

<sup>1</sup> Total rainfall for storm of June 15, 0.60 inch. Soil moist from rain of June 12. Oats and wheat 16 inches high, planted on the contour.

<sup>2</sup> Total rainfall for storm of June 20, 1.23 inches. Soil moist. Oats and wheat 16 inches high, ripe. Very little gullying.

<sup>3</sup> Total rainfall for storm of June 21, 0.24 inch. Soil wet and plastic before rain.

<sup>4</sup> Total rainfall for storm of June 25, 0.61 inch. Soil moist and firm. Grain harvested. Stubble remained.

<sup>5</sup> Total rainfall for storm of Aug. 7, 0.67 inch. Soil dry before rain. Grain harvested, stubble remained. Russian thistle covered area.

<sup>6</sup> Total rainfall for storm of Aug. 11, 0.78 inch. Soil dry before rain. Grain harvested, stubble remained. Russian thistle covered area.

<sup>7</sup> Run-off from melting snow.

<sup>8</sup> Total rainfall for storm of Mar. 1-2, 0.39 inch. Soil dry before rain. Grain stubble from previous year on field. Thickly covered with Russian thistles.

<sup>9</sup> Total rainfall for storm of May 17, 1.29 inches. Soil moist before rain. Corn planted in straight rows with lister May 14.

<sup>10</sup> Total rainfall for storm of June 8, 1.16 inches. Soil dry before rain. Corn 4 inches high, cultivated June 6.

<sup>11</sup> Total rainfall for storm of Sept. 24, 0.71 inch. Soil wet from rains of previous days. Corn very poor, about 4 feet high.

<sup>12</sup> Total rainfall for storm of Nov. 8-9, 0.58 inch. Soil dry before rain. Corn stalks standing in field.

TABLE 40.—Run-off from watershed 13—H, April 20, 1939, to December 31, 1940

LOCATION: Latitude 40°15'40", longitude 98°23'01".

#### PHYSICAL CHARACTERISTICS:

Drainage area.—3.41 acres.

Length of principal watercourse.—440 feet.

Topography.—Undulating, well drained.

Slope.—Average slope is 5.6 percent. 2 percent of the watershed has a slope of less than 2 percent; 31 percent, 2 to 5 percent; 57 percent, 5 to 8 percent; and 10 percent, 8 to 12 percent.

Erosion condition.—No depressions or gullies. The area has lost 25 to 50 percent of the topsoil.

Soil.—Holdrege silty clay loam, 49 percent; Hastings silt loam, 48 percent; Nuckolls-Holdrege silty clay loam complex, 3 percent. The Hastings silt loam occurs on the right side of the watershed, the Holdrege silty clay loam and the Nuckolls-Holdrege silty clay loam complex on the left side.

#### LAND USE AND VEGETAL COVER:

Land use distribution.—Cultivated land, 100 percent.

Vegetal cover and soil condition.—The crop for 1939 was oats and corn in strips. The strips were reversed in 1940.

Cultural operations in 1939 were as follows:

March 25, oats strips double-disked.

March 31, oats seeded in strips.

April 4, corn strips single-disked.

May 11, corn planted with lister.

June 3, corn cultivated with go-dig cultivator.

June 12, corn cultivated with go-dig cultivator.

June 22, oats sample taken, but oats too poor to harvest.

Yield of sample, 3.06 bushels an acre.

June 30, corn cultivated with shovel cultivator.

The corn was not harvested. The stalks matured at a height of 42 inches and were left standing.

Cultural operations in 1940 were as follows:

March 28, strips to be planted to oats double-disked.

March 30, oats planted in strips with grain drill.

April 16, strips to be planted to corn single-disked.

May 13, corn planted in strips with lister in rows 42 inches apart.

June 6, corn cultivated with go-dig cultivator.

June 19, corn cultivated with go-dig cultivator.

June 29, oats harvested. Yield 2.19 bushels an acre.

August 29, oats strips were tilled about 6 inches deep with wide-shovel duckfoot cultivator.

The corn was a complete failure both for forage and grain.

A sample yielded only 841 pounds of forage and 25 pounds of grain an acre. The stalks at maturity were 3½ feet high.



TABLE 40.—Run-off from watershed 13-H, April 20, 1939, to December 31, 1940—Continued

## MEASUREMENTS:

Precipitation.—Rainfall was measured at recording rain gage C23R (fig. 2). Snowfall was measured by weighing and recording rain and snow gages and by cooperative observers' measurements. Snow inventory on the watershed was obtained by inspection.

Run-off.—Run-off was measured by an H flume 3 feet deep.

Changes in instrumentation during period.—None.

## SUMMARY OF RECORDS:

Run-off.—Annual run-off amount 1940, 0.167 inch. Maximum rate of run-off 1939, 0.992 inch per hour, August 11; maximum rate 1940, 0.596 inch per hour, June 8.

Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off
1939			1939			1939			1939		
May 20 <sup>1</sup>			June 20 <sup>3</sup>			June 20			June 25 <sup>4</sup>		
a. m.	Second-foot	Inches	p. m.	Second-foot	Inches	p. m.	Second-foot	Inches	a. m.	Second-foot	Inches
5:44	0	0	1:19	0	0	4:40	1.34	0.389	1:24	0	0
45	.08	.0236	20	.41	.1200	41	1.42	.414	25	.10	.0290
46	.08	.0219	21	.26	.0766	42	1.36	.395	26	.12	.0335
47	.09	.0255	22	.27	.0776	43	1.19	.346	27	.16	.0472
48	.10	.0288	23	.28	.0819	44	.91	.265	28	.22	.0630
49	.10	.0296	24	.31	.0916	45	.86	.250	29	.27	.0774
50	.11	.0310	25	.37	.106	46	.76	.221	30	.28	.0802
51	.11	.0311	26	.47	.136	47	.61	.177	31	.24	.0683
52	.10	.0300	27	.65	.188	48	.49	.142	32	.21	.0617
53	.09	.0250	28	.76	.220	49	.42	.121	33	.20	.0596
54	.08	.0234	29	.89	.260	50	.35	.102	34	.20	.0581
55	.07	.0195	30	1.10	.319	51	.29	.084	35	.19	.0550
56	.05	.0146	31	1.25	.364	52	.25	.0726	36	.18	.0509
57	.04	.0123	32	1.34	.391	53	.23	.0672	37	.17	.0482
58	.04	.0102	33	1.32	.384	54	.17	.0507	38	.15	.0454
59	.03	.0080	34	1.26	.366	55	.13	.0383	39	.15	.0427
6:00	.02	.0067	35	1.31	.380	56	.13	.0383	40	.14	.0401
01	.02	.0055	36	1.22	.355	57	.12	.0341	41	.13	.0378
02	.01	.0043	37	1.07	.312	58	.11	.0327	42	.12	.0354
03	.01	.0039	38	1.02	.296	59	.10	.0284	43	.11	.0332
04	.01	.0031	39	.95	.276	5:00	.08	.0228	44	.10	.0305
05	.01	.0026	40	.90	.263	01	.06	.0174	45	.09	.0254
06	.01	.0027	41	.86	.250	02	.05	.0133	46	.06	.0174
07	.01	.0024	42	.83	.241	03	.03	.0100	47	.05	.0153
08	.01	.0021	43	.80	.233	04	.02	.0072	48	.05	.0158
09	.01	.0017	44	.77	.223	05	.02	.0055	49	.05	.0138
10	T	.0013	45	.74	.214	06	.02	.0055	50	.04	.0117
11	T	.0010	46	.70	.203	07	.01	.0043	51	.03	.0092
12	T	.0007	47	.66	.193	08	.01	.0039	52	.02	.0070
13	T	.0004	48	.64	.187	09	.01	.0031	53	.02	.0051
14	T	.0001	49	.63	.183	10	.01	.0019	54	.01	.0036
15	T	.0002	50	.58	.168	11	T	.0009	55	.01	.0025
16	T	.0006	51	.50	.146	12	T	.0009	56	.01	.0015
17	T	.0006	52	.46	.135	13	T	.0012	57	T	.0009
18	T	.0006	53	.41	.120	14	T	.0008	58	0	.0186
19	T	.0006	54	.34	.0996	15	T	.0006	July 1 <sup>6</sup>		
20	T	.0004	55	.31	.0892	16	T	.0003	a. m.	0	0
21	T	.0001	56	.26	.0768	17	0	.0854	5:01	0	0
22	0	.0065	57	.23	.0659	June 21 <sup>4</sup>			02	0	.0006
June 15 <sup>2</sup>			58	.18	.0532	p. m.	0	0	03	0	0
a. m.	0	0	59	.14	.0414	7:50	.05	.0149	Aug. 1 <sup>7</sup>		
3:24	0	0	01	.12	.0352	51	.12	.0341	p. m.	0	0
25	.59	.181	02	.09	.0256	52	.18	.0528	7:55	0	0
26	.78	.227	03	.07	.0211	53	.36	.104	56	.58	.169
27	.82	.239	04	.06	.0174	54	.06	.0199	57	.31	.0910
28	.80	.232	05	.04	.0133	55	.64	.186	58	.24	.0711
29	.86	.250	06	.03	.0100	56	.77	.225	59	.18	.0528
30	.93	.270	07	.03	.0076	57	.76	.220	8:00	.11	.0313
31	1.02	.296	08	.02	.0064	58	.74	.215	01	.05	.0148
32	1.14	.332	09	.01	.0033	59	.67	.195	02	.03	.0089
33	1.74	.508	10	T	.0010	01	.55	.161	03	0	.0074
34	2.31	.672	11	.01	.0015	02	.48	.141	Aug. 7 <sup>8</sup>		
35	2.14	.621	12	T	.0012	03	.42	.122	p. m.	0	0
36	1.69	.492	13	T	.0012	04	.36	.104	4:46	.07	.0189
37	1.28	.371	14	T	.0006	05	.33	.0956	47	.05	.0138
38	1.04	.302	15	T	.0004	06	.26	.0756	48	.04	.0124
39	.79	.230	16	T	.0008	07	.24	.0683	49	.04	.0118
40	.71	.206	17	T	.0006	08	.21	.0609	50	.02	.0072
41	.72	.208	18	T	.0005	09	.17	.0484	51	.02	.0055
42	.55	.159	19	T	.0004	10	.15	.0431	52	.01	.0039
43	.45	.131	20	T	.0004	11	.12	.0340	53	.01	.0025
44	.39	.113	21	T	.0004	12	.11	.0323	54	.01	.0015
45	.30	.0887	22	0	.1416	13	.09	.0271	55	T	.0009
46	.27	.0794	4:25			14	.08	.0220	56	T	.0005
47	.20	.0581	0	0	0	15	.06	.0174	57	T	.0003
48	.15	.0437	04	.04	.0128	16	.05	.0132	58	0	.0014
49	.14	.0404	07	.07	.0212	17	.03	.0100	5:26	0	0
50	.10	.0283	12	.12	.0353	18	.02	.0069	27	.19	.0554
51	.09	.0257	20	.20	.0597	19	.02	.0055	28	.38	.109
52	.07	.0212	30	.27	.0786	20	.01	.0039	29	.58	.167
53	.07	.0196	31	.35	.102	21	.01	.0025	30	.61	.178
54	.05	.0153	32	.40	.116	22	.01	.0018	31	.52	.152
55	.04	.0124	33	.42	.123	23	.01	.0019	32	.48	.141
56	.04	.0111	34	.44	.129	24	T	.0014	0		
57	.03	.0086	35	.49	.142	25	T	.0008	.0005		
58	.02	.0064	36	.56	.163	26	T	.0003	.0019		
59	.02	.0047	37	.68	.199	27	0	.0392	.0071		
4:00	.01	.0024	38	.86	.250				.0099		
01	0	0	39	1.10	.320				.0123		

See footnotes at end of table.



TABLE 40.—Run-off from watershed 13-H, April 20, 1939, to December 31, 1940—Continued.

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1939				1939				1940				1940			
Aug. 7				Aug. 11 <sup>9</sup>				June 8				June 8			
p. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches
5:33	0.38	0.111	0.0144	9:54	0	0	0	8:23	0.02	0.0048	0.0002	9:37	0.03	0.0091	0.1454
:34	.30	.0887	.0161	:55	.99	.289	.0024	:24	.01	.0042	.0003	:38	.03	.0095	.1457
:35	.19	.0558	.0173	:56	1.32	.384	.0080	:25	.01	.0039	.0004	:39	.03	.0096	.1459
:36	.16	.0461	.0182	:57	1.41	.409	.0146	:26	.01	.0036	.0005	:40	.03	.0097	.1461
:37	.12	.0342	.0189	:58	1.76	.511	.0223	:27	.01	.0030	.0006	:41	.03	.0101	.1463
:38	.07	.0195	.0193	:59	2.50	.728	.0326	:28	.01	.0028		:42	.04	.0114	.1465
:39	.06	.0186	.0196	10:00	3.17	.922	.0464	:29	.01	.0026		:43	.05	.0132	.1467
:40	.05	.0140	.0199	:01	3.41	.992	.0624	:30	.01	.0026		:44	.05	.0149	.1475
:41	.08	.0223	.0202	:02	3.29	.956	.0786	:31	.01	.0026		:45	.05	.0159	.1469
:42	.09	.0247	.0206	:03	2.94	.855	.0937	:32	.01	.0026	.0006	:46	.06	.0160	.1476
:43	.08	.0223	.0210	:04	2.74	.797	.1075	:33	.21	.0614	.0011	:47	.06	.0165	.1472
:44	.06	.0177	.0213	:05	2.30	.668	.1197	:34	1.29	.375	.0047	:48	.06	.0167	.1475
:45	.05	.0152	.0216	:06	2.13	.619	.1304	:35	1.07	.311	.0104	:49	.06	.0163	.1488
:46	.04	.0120	.0218	:07	1.83	.531	.1400	:36	.78	.227	.0149	:50	.05	.0154	.1501
:47	.03	.0095	.0220	:08	1.41	.410	.1478	:37	2.00	.581	.0216	:51	.05	.0144	.1507
:48	.03	.0082	.0221	:09	1.07	.311	.1538	:38	1.65	.480	.0304	:52	.05	.0143	.1509
:49	.02	.0072	.0222	:10	.83	.243	.1584	:39	1.92	.558	.0390	:53	.05	.0137	.1511
:50	.01	.0040	.0223	:11	.56	.163	.1618	:40	2.05	.596	.0486	:54	.05	.0137	.1487
:51	T	.0010		:12	.56	.162	.1645	:41	1.79	.520	.0579	:55	.05	.0137	.1515
:52	.01	.0015		:13	.53	.155	.1671	:42	1.52	.442	.0659	:56	.05	.0133	.1519
:53	T	.0013		:14	.41	.120	.1694	:43	1.30	.378	.0727	:57	.04	.0125	.1510
:54	.01	.0016		:15	.32	.0916	.1712	:44	1.18	.343	.0787	:58	.04	.0113	.1523
:55	T	.0012		:16	.28	.0817	.1726	:45	.105	.305	.0841	:59	.04	.0107	.1487
:56	T	.0010		:17	.23	.0675	.1738	:46	.95	.276	.0889	10:00	.03	.0101	.1489
:57	T	.0007		:18	.17	.0497	.1748	:47	.89	.259	.0934	:01	.04	.0106	.1491
:58	T	.0004		:19	.08	.0230	.1754	:48	.97	.282	.0979	:02	.04	.0104	.1493
:59	T	.0001		:20	.07	.0202	.1758	:49	1.02	.296	.1027	:03	.04	.0103	.1495
6:00	0	0	.0224	:21	.07	.0196	.1761	:50	1.05	.305	.1077	:04	.03	.0101	.1497
8:50	0	0	0	:22	.05	.0142	.1764	:51	.91	.264	.1124	:05	.03	.0097	.1499
:51	.02	.0047		:23	.03	.0082	.1766	:52	.76	.221	.1164	:06	.03	.0090	.1501
:52	.02	.0047	.0001	:24	.03	.0100	.1768	:53	.63	.183	.1198	:07	.03	.0079	.1503
:53	.01	.0041	.0002	:25	.02	.0069	.1769	:54	.52	.151	.1226	:08	.03	.0074	.1505
:54	.02	.0049	.0003	:26	.01	.0041	.1770	:55	.46	.134	.1250	:09	.02	.0073	.1521
:55	.02	.0055	.0004	:27	.01	.0024	.1771	:56	.39	.112	.1270	:10	.02	.0068	.1522
:56	.02	.0056	.0005	:28	.01	.0025		:57	.36	.104	.1288	:11	.02	.0052	.1523
:57	.02	.0060	.0006	:29	.01	.0015		:58	.32	.0922	.1304	:12	.02	.0045	.1524
:58	.02	.0054	.0007	:30	T	.0009		:59	.26	.0767	.1318	:13	.02	.0048	.1525
:59	.01	.0033	.0008	:31	T	.0002		9:00	.26	.0762	.1331	:14	.02	.0048	.1526
9:00	.01	.0029	.0009	:32	0	0	.1772	:01	.24	.0709	.1343	:15	.02	.0045	.1527
:01	.01	.0027		1940				:02	.21	.0605	.1354	:20	.01	.0041	.1528
:02	.01	.0024		May 17 <sup>10</sup>				:03	.19	.0544	.1364	:25	.01	.0041	.1532
:03	.01	.0021		a. m.				:04	.16	.0474	.1372	:30	.01	.0030	.1535
:04	.01	.0017		2:26	0	0	0	:05	.15	.0427	.1380	:45	.01	.0021	.1538
:05	.01	.0020		:27	T	.0013		:06	.14	.0398	.1387	11:00	.01	.0021	.1544
:06	.01	.0016		:28	T	.0010	.0001	:07	.11	.0323	.1393	12:00	.01	.0017	.1549
:07	.01	.0030		:29	T	.0010	.0001	:08	.10	.0294	.1398				.1568
:08	.01	.0021		:30	T	.0006	.0001	:09	.09	.0271	.1403	June 9			
:09	.01	.0017		:45	T	.0006	.0003	:10	.08	.0245	.1407	a. m.			
:10	.01	.0018		3:00	T	.0006	.0005	:11	.07	.0218	.1411	1:00	T	.0013	
:11	.01	.0021		:30	T	.0006	.0008	:12	.07	.0194	.1414	2:00	T	.0006	.1583
:15	.01	.0021		4:00	T	.0013	.0013	:13	.06	.0175	.1417	3:00	T	.0003	.1593
:16	.01	.0032		:30	T	.0010	.0019	:14	.06	.0167	.1420	4:00	T	T	.1597
:17	.01	.0037	.0013	5:00	T	.0013	.0025	:15	.05	.0154	.1423	5:00	T	T	
:18	.01	.0042	.0014	6:00	T	.0006	.0035	:16	.05	.0144	.1425	:15	0	0	.1597
:19	.02	.0047	.0015	7:00	T	.0006	.0041	:17	.05	.0146	.1427				
:20	.01	.0042	.0016	8:00	T	.0006	.0047	:18	.05	.0137	.1429	Nov. 9 <sup>12</sup>			
:21	.01	.0027	.0017	9:00	T	.0006	.0053	:19	.04	.0131	.1431	a. m.			
:22	.01	.0024		10:00	T	.0005	.0059	:20	.04	.0113	.1433	1:15	0	0	
:23	.01	.0021		11:00	T	.0003	.0063	:21	.04	.0107	.1435	:30	T	T	T
:24	.01	.0017		12:00	T	T	.0065	:22	.04	.0106	.1437	2:00	T	T	.0002
:25	T	.0013		p. m.				:23	.03	.0101	.1439	:30	T	T	.0004
:26	T	.0010		1:00	0	0	.0065	:24	.03	.0097	.1441	3:00	T	.0006	.0004
:27	T	.0007		June 8 <sup>11</sup>				:25	.03	.0090	.1443	10:30	0	0	.0004
:28	T	.0004		p. m.				:26	.03	.0087	.1444	:45	T	T	.0004
:29	T	.0001		8:14	0	0	0	:27	.03	.0084	.1445	11:00	T	.0013	.0006
:30	T	.0001		:15	.01	.0015		:28	.03	.0084	.1446	:15	T	.0006	.0008
:31	T	.0003		:16	.01	.0017		:29	.03	.0078	.1447	:30	T	T	.0009
:32	T	.0003		:17	T	.0013		:30	.03	.0076	.1448		T	T	
:33	T	.0003		:20	T	.0013		:31	.03	.0083	.1449		T	T	
:34	T	.0002		:21	T	.0013		:32	.03	.0080	.1450		T	T	
:35	T	.0001		:22	.01	.0024		:33	.03	.0080	.1451		T	T	
:36	T	T			.02	.0044	.0001	:34	.03	.0080	.1452				
:37	0	0	.0019					:35	.03	.0084	.1453				
								:36	.03	.0084	.1454				

<sup>1</sup> Total rainfall for storm of May 20, 0.86 inch. Soil dry before rain. Corn and oats on the contour in strips. Corn sprouted in rows 42 inches apart. Oats 4 inches high.

<sup>2</sup> Total rainfall for storm of June 15, 0.60 inch. Soil moist from rain of June 12. Corn 9 inches high; oats 12 inches high, thin. Cultivated June 12 before rain.

<sup>3</sup> Total rainfall for storm of June 20, 0.96 inch. Soil moist before rain. Oats 12 inches high. Corn 12 inches high. Cultivator furrows in corn broke over. Many small gullies formed.

<sup>4</sup> Total rainfall for storm of June 21, 0.19 inch. Soil wet and plastic before rain.

<sup>5</sup> Total rainfall for storm of June 25, 0.53 inch. Soil moist and firm. Oats 10 inches high, too poor to harvest. Corn 18 inches high. Gullies from previous rain remained.

<sup>6</sup> Total rainfall for storm of July 1, 0.33 inch. Soil dry on surface before rain. Corn 20 inches high, cultivated June 20. Uncut oats 9 inches high.

<sup>7</sup> Total rainfall for storm of Aug. 1, 0.34 inch. Soil loose and dry before rain. Corn

36 inches high, badly damaged by drought and grasshoppers. Uncut oats 8 inches high.

<sup>8</sup> Total rainfall for storm of Aug. 7, 0.78 inch. Soil loose and dry before rain. Corn 42 inches high. Uncut oats 6 inches high. Russian thistle growing in oats strips.

<sup>9</sup> Total rainfall for storm of Aug. 11, 0.57 inch. Soil dry before rain. Corn 42 inches high. Uncut oats 6 inches high remained. Russian thistle growing in oats strips.

<sup>10</sup> Total rainfall for storm of May 17, 0.94 inch. Soil moist before rain. Corn strips planted with lister May 13. Oats 6 inches high.

<sup>11</sup> Total rainfall for storm of June 8, 1.13 inches. Soil dry before rain. Corn 4 inches high, cultivated June 6. Oats 12 inches high, very poor.

<sup>12</sup> Total rainfall for storm of Nov. 8-9, 0.54 inch. Soil dry before rain. Corn stalks remained on field. Oat strips had been cultivated with duck-foot cultivator Aug. 29



TABLE 41.—Run-off from watershed 14-H, April 20, 1939, to December 31, 1940

LOCATION: Latitude 40°15'36", longitude 98°23'07".

## PHYSICAL CHARACTERISTICS:

Drainage area.—3.35 acres.

Length of principal watercourse.—475 feet.

Topography.—Undulating, well drained.

Slope.—Average slope is 5.4 percent. 41 percent of the watershed has a slope of 2 to 5 percent; 46 percent, 5 to 8 percent; and 13 percent, 8 to 12 percent.

Erosion condition.—No depressions or gullies. 78 percent of the area has lost less than 25 percent of the topsoil; 22 percent of the area has lost 25 to 50 percent of the topsoil.

Soil.—Hastings silt loam, 85 percent; Hastings silty clay loam, 15 percent. The Hastings silty clay loam occurs in the lower part of the area.

## LAND USE AND VEGETAL COVER:

Land use distribution.—Cultivated land, 100 percent.

Vegetal cover and soil condition.—The crop for 1939 was corn planted on the contour and for 1940 was oats planted in straight rows. Cultural operations in 1939 were as follows:

April 25, single-disked on the contour.

May 11-12, corn planted on the contour with lister.

June 3, corn cultivated with go-dig cultivator.

June 12, corn cultivated with go-dig cultivator.

June 30, corn cultivated with shovel cultivator.

The corn was a complete failure, both for grain and forage.

At maturity, the stalks were about 42 inches high. They remained standing on the field.

Cultural operations in 1940 were as follows:

March 28, double-disked in straight rows.

March 30, oats planted with grain drill in straight rows.

June 29, oats harvested. Yield 10.2 bushels an acre.

August 14-15, plowed on the contour about 5 inches deep with a moldboard plow.

September 18, harrowed on the contour with peg-tooth harrow.

September 26, planted on the contour to winter wheat.

The wheat sprouted and thrived, reaching a height of 3 inches at the end of the season.

## MEASUREMENTS:

Precipitation.—Rainfall was measured at recording rain gage C23R (fig 2). Snowfall was measured by weighing and recording rain and snow gages and by cooperative observers' measurements. Snow inventory on the watershed was obtained by inspection.

Run-off.—Run-off is measured by an H flume 3 feet deep.

Changes in instrumentation during period.—None.

## SUMMARY OF RECORDS:

Run-off.—Annual run-off amount 1940, 0.220 inch. Maximum rate of run-off 1939, 0.359 inch per hour, June 20; maximum rate 1940, 0.128 inch per hour, May 17.

Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off
1939			1939			1939			1939		
May 20 <sup>1</sup>			June 12			June 20			June 20		
a. m.	Second-feet	Inches per hour	p. m.	Second-feet	Inches per hour	p. m.	Second-feet	Inches per hour	p. m.	Second-feet	Inches per hour
5:34	0	0	9:33	T	.0005	1:21	0.01	0.0024	2:10	0.07	0.0209
:35	.01	.0024	:34	T	.0003	:22	.01	.0030	:11	.06	.0192
:36	.01	.0015	:35	T	T	:23	.01	.0033	:12	.06	.0174
:37	.01	.0018	:36	0	0	:24	.01	.0041	:13	.05	.0157
:38	.01	.0021			0.0005	:25	.02	.0067	:14	.05	.0142
:39	.01	.0024	June 15 <sup>2</sup>			:26	.04	.0126	:15	.04	.0126
:40	.01	.0022	a. m.			:27	.08	.0236	:16	.04	.0113
:41	.01	.0017	3:20	0	0	:28	.12	.0367	:17	.03	.0102
:42	.01	.0015	:21	.05	.0156	:29	.15	.0446	:18	.03	.0091
:43	T	.0014	:22	.06	.0192	:30	.21	.0618	:19	.03	.0084
:44	T	.0012	:23	.05	.0157	:31	.27	.0802	:20	.02	.0073
:45	T	.0013	:24	.05	.0159	:32	.29	.0845	:21	.02	.0061
:46	.01	.0018	:25	.05	.0159	:33	.31	.0912	:22	.02	.0052
:47	.01	.0020	:26	.04	.0127	:34	.33	.0976	:23	.02	.0044
:48	.01	.0021	:27	.04	.0120	:35	.34	.102	:24	.01	.0041
:49	.01	.0023	:28	.04	.0111	:36	.36	.107	:25	.01	.0031
:50	.01	.0022	:29	.03	.0102	:37	.36	.108	:26	.01	.0016
:51	.01	.0017	:30	.03	.0088	:38	.33	.0983	:27	T	.0009
:52	.01	.0015	:31	.02	.0065	:39	.32	.0935	:28	T	.0006
:53	T	.0014	:32	.02	.0049	:40	.31	.0927	:29	T	.0002
:54	T	.0012	:33	.01	.0023	:41	.41	.121	:30	0	0
:55	T	.0010	:34	0	0	:42	.46	.137			
:56	T	.0009	:35	T	.0013	:43	.50	.148			
:57	T	.0007	:36	T	.0013	:44	.55	.162	4:27	0	0
:58	T	.0006	:37	.08	.0229	:45	.55	.163	:28	.02	.0058
:59	T	.0005	:38	.14	.0410	:46	.53	.156	:29	.03	.0092
6:00	T	.0003	:39	.23	.0677	:47	.53	.156	:30	.05	.0142
:01	T	.0002	:40	.25	.0737	:48	.54	.160	:31	.07	.0206
:02	T	.0001	:41	.25	.0734	:49	.55	.163	:32	.12	.0353
:03	0	0	:42	.17	.0512	:50	.57	.169	:33	.23	.0669
0.0007			:43	.13	.0383	:51	.62	.184	:34	.32	.0959
June 12 <sup>2</sup>			:44	.12	.0347	:52	.62	.184	:35	.34	.100
p. m.			:45	.09	.0280	:53	.62	.184	:36	.34	.0996
9:18	0	0	:46	.07	.0202	:54	.56	.165	:37	.34	.102
:19	.02	.0059	:47	.05	.0156	:55	.49	.146	:38	.44	.130
:20	.02	.0046	:48	.03	.0093	:56	.42	.126	:39	.62	.185
:21	.01	.0044	:49	.02	.0063	:57	.37	.110	:40	.80	.237
:22	.01	.0042	:50	.01	.0040	:58	.32	.0950	:41	1.07	.318
:23	.01	.0042	:51	.01	.0038	:59	.27	.0803	:42	1.21	.357
:24	.01	.0016	:52	.01	.0028	2:00	.23	.0688	:43	1.21	.359
:25	.01	.0022	:53	.01	.0016	:01	.21	.0631	:44	1.15	.340
:26	.01	.0022	:54	T	.0007	:02	.19	.0554	:45	1.15	.340
:27	.01	.0034	:55	0	0	:03	.16	.0488	:46	1.05	.311
:28	.01	.0031			.0107	:04	.15	.0442	:47	.96	.284
:29	.01	.0020	June 20 <sup>4</sup>			:05	.13	.0392	:48	.88	.260
:30	.01	.0016	p. m.			:06	.12	.0342	:49	.76	.225
:31	T	.0013	1:19	0	0	:07	.10	.0301	:50	.68	.200
:32	T	.0009	:20	.02	.0051	:08	.09	.0262	:51	.66	.196
						:09	.08	.0227	:52	.59	.174

See footnotes at end of table, p. 96.



TABLE 41.—Run-off from watershed 14-H, April 20, 1939, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1939															
June 20															
p. m.	Second-foot	Inches per hour	Inches	1939				Aug. 7				1939			
June 25															
a. m.	Second-foot	Inches per hour	Inches	1939				Aug. 7				1939			
4:53	0.48	0.141	0.0755	1:23	0.09	0.0278	0.0008	8:35	0.01	0.0034	0.0002	10:22	0.01	0.0038	0.0140
5:4	.41	.120	.0777	2:4	.09	.0278	.0013	3:6	.01	.0038	.0002	2:3	.01	.0038	.0141
5:5	.35	.103	.0796	2:5	.05	.0154	.0017	3:7	.01	.0044	.0003	2:4	.01	.0016	
5:6	.32	.0946	.0812	2:6	.05	.0159	.0020	3:8	.02	.0048	.0004	2:5	T	.0008	
5:7	.28	.0840	.0827	2:7	.05	.0159	.0023	3:9	.01	.0042	.0005	2:6	T	.0003	
5:8	.26	.0779	.0841	2:8	.07	.0193	.0026	4:0	.01	.0042	.0006	2:7	T	0	.0141
5:9	.24	.0710	.0853	2:9	.10	.0306	.0030	4:1	.01	.0042	.0007		0	0	
5:00	.22	.0644	.0864	3:0	.10	.0306	.0035	4:2	.01	.0042	.0008	1940			
6:1	.20	.0589	.0874	3:1	.08	.0249	.0040	4:3	.02	.0050	.0009	Feb. 13 10			
6:2	.18	.0526	.0883	3:2	.06	.0188	.0044	4:4	.02	.0062	.0010	p. m.			
6:3	.16	.0466	.0891	3:3	.05	.0144	.0047	4:5	.02	.0057	.0011	2:14	0	0	0
6:4	.14	.0412	.0898	3:4	.03	.0102	.0049	4:6	.02	.0062	.0012	1:5	T	.0006	.0001
6:5	.12	.0364	.0904	3:5	.02	.0063	.0050	4:7	.02	.0064	.0013	2:0	T	.0010	.0002
7:0	.11	.0340	.0910	3:6	.01	.0040	.0051	4:8	.02	.0068	.0014	2:1	T	.0012	.0003
7:1	.10	.0320	.0915	3:7	.01	.0038	.0052	4:9	.02	.0070	.0015	2:2	T	.0013	.0004
7:2	.08	.0239	.0919	3:8	.01	.0028	.0053	4:0	.02	.0069	.0016	2:3	T	.0016	.0005
7:3	.07	.0197	.0923	3:9	.01	.0016		4:1	.02	.0062	.0017	2:4	T	.0017	.0006
7:4	.06	.0183	.0926	4:0	T	.0007		4:2	.02	.0060	.0018	2:5	.01	.0020	.0007
7:5	.05	.0161	.0929	4:1	0	0	.0053	4:3	.02	.0057	.0019	2:6	.01	.0022	.0012
7:6	.05	.0142	.0932	Aug. 1 7				4:4	.02	.0054	.0020	2:7	.01	.0020	.0012
7:7	.04	.0122	.0934	p. m.				4:5	.02	.0053	.0021	2:8	.01	.0022	.0012
7:8	.03	.0101	.0936	7:52	0	0	0	4:6	.02	.0055	.0022	2:9	.01	.0026	.0024
7:9	.03	.0083	.0938	5:3	.04	.0120	.0001	4:7	.02	.0055	.0023	2:0	.01	.0031	.0038
7:0	.02	.0065	.0939	5:4	.01	.0022	.0002	4:8	.02	.0055	.0024	2:1	.01	.0031	.0038
7:1	.02	.0049	.0940	5:5	.01	.0018		4:9	.02	.0055	.0025	2:2	.01	.0037	.0071
7:2	.01	.0038	.0941	5:6	.01	.0016		4:0	.02	.0054	.0026	2:3	.01	.0031	.0088
7:3	.01	.0028	.0942	5:7	.01	.0007		4:1	.02	.0052	.0027	2:4	.01	.0022	.0101
7:4	.01	.0021	.0943	5:8	T	.0007		4:2	.02	.0051	.0028	2:5	T	.0013	.0119
7:5	.01	.0023		5:9	0	0	.0002	4:3	.02	.0050	.0029	2:6	T	.0006	.0129
7:6	.01	.0020		Aug. 7 8				4:4	.02	.0048	.0030	2:7	T	T	.0132
7:7	.01	.0016		p. m.				4:5	.02	.0047	.0031	2:8	0	0	.0132
7:8	T	.0010		4:43	0	0	0	4:6	.02	.0046	.0032	Feb. 14 10			
7:9	T	.0006		4:4	.01	.0042		4:7	.02	.0045	.0033	p. m.			
7:0	T	.0002		4:5	.01	.0042	.0001	4:8	.01	.0044	.0034	2:17	0	0	0
7:1	0	0	.0944	4:6	.01	.0042	.0002	4:9	.01	.0042	.0035	2:18	.01	.0022	
June 21 5				4:7	.01	.0042	.0003	4:0	.01	.0042	.0036	2:19	.01	.0042	.0001
p. m.				4:8	.01	.0042	.0004	4:1	.02	.0048	.0037	2:20	.01	.0042	.0001
7:52	0	0	0	4:9	.01	.0042	.0004	4:2	.02	.0050	.0038	2:21	.02	.0069	.0010
7:53	.44	.132	.0011	4:0	.01	.0016		4:3	.02	.0053	.0039	2:22	.03	.0077	.0028
7:54	.55	.161	.0035	4:1	T	.0011		4:4	.02	.0055	.0040	2:23	.03	.0077	.0047
7:55	.65	.191	.0064	4:2	T	.0012		4:5	.02	.0055	.0041	2:24	.03	.0077	.0124
7:56	.69	.203	.0097	4:3	T	.0009		4:6	.02	.0050	.0044	2:25	.03	.0085	.0164
7:57	.71	.211	.0131	4:4	T	.0006		4:7	.02	.0048	.0045	2:26	.03	.0094	.0186
7:58	.70	.206	.0166	4:5	T	.0003		4:8	.02	.0047	.0046	2:27	.04	.0112	.0212
7:59	.53	.158	.0196	4:6	T			4:9	.02	.0046	.0047	2:28	.04	.0120	.0241
8:00	.44	.130	.0220	4:7	T	.0003		4:0	.02	.0045	.0048	2:29	.04	.0130	.0272
8:01	.38	.112	.0240	4:8	0	0	.0004	4:1	.01	.0044	.0049	2:30	.04	.0130	.0304
8:02	.33	.0981	.0258	4:9	0	0	0	4:2	.01	.0042	.0050	2:31	.03	.0094	.0360
8:03	.28	.0821	.0273	5:23	.02	.0066	.0001	4:3	.01	.0040	.0051	2:32	.03	.0085	.0382
8:04	.27	.0800	.0287	5:24	.03	.0084	.0002	4:4	.01	.0037	.0052	2:33	.02	.0069	.0401
8:05	.22	.0663	.0299	5:25	.04	.0122	.0004	4:5	.01	.0035	.0053	2:34	.02	.0055	.0417
8:06	.22	.0664	.0310	5:26	.04	.0133	.0006	4:6	.01	.0032	.0054	2:35	.01	.0042	.0429
8:07	.20	.0607	.0321	5:27	.05	.0139	.0008	4:7	.01	.0030	.0055	2:36	.01	.0031	.0438
8:08	.17	.0502	.0330	5:28	.03	.0101	.0010	4:8	.01	.0026		2:37	.01	.0022	.0444
8:09	.14	.0410	.0338	5:29	.03	.0083	.0012	4:9	.01	.0019		2:38	T	.0013	.0448
8:10	.13	.0398	.0345	5:30	.02	.0065	.0013	4:0	T	.0013		2:39	T	.0006	.0453
8:11	.12	.0342	.0351	5:31	.02	.0052	.0014	4:1	T	.0006		2:40	T	T	.0455
8:12	.10	.0296	.0356	5:32	.02	.0047	.0015	4:2	0	.0002	.0056	2:41	0	0	.0455
8:13	.08	.0239	.0360	5:33	.01	.0041	.0016	4:3				Feb. 15 10			
8:14	.07	.0197	.0364	5:34	.01	.0032	.0017	Aug. 11 9				p. m.			
8:15	.06	.0173	.0367	5:35	.01	.0024		9:55	0	0	0	1:17	0	0	0
8:16	.04	.0132	.0370	5:36	.01	.0019		9:56	.09	.0252	.0002	1:18	.01	.0026	
8:17	.04	.0122	.0372	5:37	T	.0009		9:57	.09	.0252	.0006	1:19	.01	.0037	.0001
8:18	.03	.0101	.0374	5:38	0	0	.0017	9:58	.06	.0178	.0010	1:20	.01	.0042	.0004
8:19	.03	.0083	.0376	5:39	0	0	0	9:59	.07	.0217	.0013	1:21	.01	.0042	.0008
8:20	.02	.0065	.0377	7:33	.01	.0028		10:00	.07	.0203	.0017	1:22	.02	.0045	.0019
8:21	.02	.0049	.0378	7:34	.01	.0028		10:01	.07	.0203	.0020	1:23	.02	.0045	.0030
8:22	.01	.0038	.0379	7:35	.01	.0040	.0001	10:02	.07	.0203	.0023	1:24	.02	.0049	.0042
8:23	.01	.0028	.0380	7:36	.02	.0059	.0002	10:03	.07	.0203	.0026	1:25	.02	.0049	.0054
8:24	.01	.0016		7:37	.02	.0055	.0003	10:04	.16	.0473	.0032	1:26	.02	.0051	.0066
8:25	T	.0011		7:38	.02	.0055	.0004	10:05	.23	.0675	.0042	1:27	.02	.0051	.0079
8:26	T	.0012		7:39	.02	.0055	.0005	10:06	.21	.0628	.0053	1:28	.02	.0051	.0130
8:27	T	.0009		7:40	.02	.0046	.0006	10:07	.21	.0613	.0063	1:29	.02	.0049	.0180
8:28	T	.0006		7:41	.01	.0041	.0007	10:08	.22	.0642	.0073	1:30	.01	.0042	.0226
8:29	T	.0003		7:42	.01	.0036	.0008	10:09	.24	.0696	.0084	1:31	.01	.0031	.0244
8:30	T			7:43	.01	.0029	.0009	10:10	.24	.0696	.0096	1:32	T	.0013	.0255
8:31	0	0	.0381	7:44	.01	.0024		10:11	.14	.0427	.0105</				



TABLE 41.—Run-off from watershed 14-H, April 20, 1939, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off
1940			1940			1940			1940		
Feb. 27			Mar. 4			Mar. 16			May 17		
p. m.	Second-foot	Inches per hour	p. m.	Second-foot	Inches per hour	p. m.	Second-foot	Inches per hour	a. m.	Second-foot	Inches per hour
12:15	T	0.0017	7:00	T	0.0003	5:00	T	0.0050	5:40	0.04	0.0120
:30	0.01	0.0013	:30	T	0.0006	:40	0	0	:41	0.03	0.0103
:45	0.01	0.0022	8:00	T	0.0010				:42	0.03	0.0094
1:00	0.01	0.0026	9:00	T	T				:43	0.03	0.0085
2:00	0.01	0.0024	:30	T	T	May 17 <sup>12</sup>			:44	0.03	0.0077
:15	0.01	0.0022	10:00	0	0	a. m.			:45	0.02	0.0069
:30	0.01	0.0017				4:18	0	0	:46	0.02	0.0062
:45	0.01	0.0016	Mar. 5 <sup>10</sup>			:19	0.01	0.0022	:47	0.02	0.0055
3:00	T	0.0013	a. m.			:20	0.03	0.0103	:48	0.02	0.0049
:15	0.01	0.0017	11:17	0	0	:21	0.04	0.0120	:49	0.01	0.0042
:30	T	0.0013	:18	T	0.0003	:22	0.04	0.0112	:50	0.01	0.0037
4:00	T	0.0010	:20	T	0.0003	:23	0.04	0.0108	:51	0.01	0.0037
:30	T	0.0006	:30	T	0.0010	:24	0.03	0.0103	:52	0.01	0.0034
5:00	T	0.0003	:45	T	0.0010	:25	0.03	0.0097	:53	0.01	0.0032
6:00	T	T	12:00	T	0.0010	:26	0.03	0.0094	:54	0.01	0.0031
7:00	0	0				:27	0.03	0.0085	:55	0.01	0.0029
Feb. 29 <sup>10</sup>						:28	0.03	0.0085	:56	0.01	0.0026
a. m.						:33	0.03	0.0085	:57	0.01	0.0025
11:00	0	0				:34	0.03	0.0094	:58	0.01	0.0025
:01	T	0.0001				:35	0.03	0.0103	:59	0.01	0.0023
:05	T	0.0006				:36	0.04	0.0112	6:00	0.01	0.0022
:10	T	0.0010				:37	0.04	0.0130	:05	0.01	0.0022
:15	T	0.0010				:38	0.04	0.0130	:10	0.01	0.0020
:30	T	0.0010				:39	0.05	0.0139	:15	0.01	0.0017
:45	T	0.0013				:40	0.05	0.0149	:20	T	0.0013
12:00	T	0.0010				:41	0.06	0.0170	:25	T	0.0013
p. m.						:42	0.06	0.0185	:30	0.01	0.0016
12:15	T	0.0010				:43	0.07	0.0220	:35	0.01	0.0016
:20	T	0.0006				:44	0.09	0.0265	:40	0.01	0.0017
:30	T	0.0006				:45	0.10	0.0292	:45	0.01	0.0017
:45	T	0.0006				:46	0.10	0.0284	:50	0.01	0.0022
:50	T	0.0003				:47	0.09	0.0278	:55	0.01	0.0022
:55	T	T				:48	0.10	0.0305	7:00	0.01	0.0017
:56	T	T				:49	0.12	0.0364	:15	0.01	0.0017
:57	T	T				:50	0.13	0.0397	:20	0.01	0.0017
:58	0	0				:51	0.13	0.0379	:25	0.01	0.0020
Mar. 1 <sup>11</sup>						:52	0.14	0.0414	:30	0.01	0.0026
p. m.						:53	0.15	0.0444	:35	0.01	0.0026
7:27	0	0				:54	0.18	0.0533	:40	0.01	0.0026
:28	T	0.0006				:55	0.21	0.0613	:45	0.01	0.0017
:29	T	0.0010				:56	0.23	0.0672	:50	0.01	0.0013
:30	T	0.0013				:57	0.24	0.0716	9:00	0.01	0.0006
:35	0.01	0.0017				:58	0.26	0.0781	10:00	T	0.0006
:40	0.01	0.0022				:59	0.29	0.0852	11:00	T	0.0006
:45	0.01	0.0022				5:00	0.31	0.0924	:45	T	0.0006
8:00	0.01	0.0022				:01	0.33	0.0974	:50	0	0
:15	0.01	0.0022				:02	0.34	0.100			
:30	0.01	0.0020				:03	0.36	0.108			
9:00	T	0.0013				:04	0.39	0.116			
:30	0.01	0.0017				:05	0.40	0.119			
10:00	0.01	0.0017				:06	0.42	0.125			
:15	T	0.0010				:07	0.43	0.128			
:20	T	0.0006				:08	0.42	0.125			
:25	T	T				:09	0.42	0.125			
:26	T	T				:10	0.42	0.125			
:27	0	0				:11	0.41	0.122			
Mar. 4 <sup>10</sup>						:12	0.40	0.119			
p. m.						:13	0.38	0.113			
1:33	0	0				:14	0.35	0.103			
:34	T	T				:15	0.32	0.0947			
:35	T	T				:16	0.30	0.0900			
:40	0.01	0.0006				:17	0.29	0.0852			
:45	0.01	0.0017				:18	0.25	0.0737			
:50	0.01	0.0031				:19	0.21	0.0613			
:55	0.01	0.0042				:20	0.18	0.0533			
2:00	0.02	0.0049				:21	0.17	0.0497			
:05	0.02	0.0055				:22	0.16	0.0462			
:10	0.02	0.0069				:23	0.14	0.0414			
:15	0.02	0.0069				:24	0.12	0.0364			
:20	0.02	0.0055				:25	0.11	0.0320			
:25	0.02	0.0048				:26	0.10	0.0305			
:30	0.01	0.0042				:27	0.10	0.0292			
:45	0.01	0.0037				:28	0.09	0.0278			
:50	0.01	0.0037				:29	0.09	0.0265			
:55	0.01	0.0031				:30	0.09	0.0260			
3:00	0.01	0.0031				:31	0.09	0.0252			
4:00	0.01	0.0022				:32	0.08	0.0227			
5:00	T	0.0013				:33	0.07	0.0215			
6:00	T	0.0006				:34	0.07	0.0203			
						:35	0.06	0.0192			
						:36	0.06	0.0181			
						:37	0.05	0.0159			
						:38	0.05	0.0139			
						:39	0.04	0.0130			

<sup>1</sup> Total rainfall for storm of May 20, 0.86 inch. Soil dry before rain. Corn planted on the contour with lister in rows 42 inches apart May 11 and 12, sprouting.

<sup>2</sup> Total rainfall for storm of June 12, 0.32 inch. Soil moist before rain. Corn 8 inches high, cultivated on this day before rain.

<sup>3</sup> Total rainfall for storm of June 15, 0.60 inch. Soil moist from rain of June 12. Corn 9 inches high.

<sup>4</sup> Total rainfall for storm of June 20, 0.96 inch. Soil moist before rain. Corn 13 inches high. Cultivator furrows broke over. Many small gullies formed.

<sup>5</sup> Total rainfall for storm of June 21, 0.19 inch. Soil wet and plastic before rain.

<sup>6</sup> Total rainfall for storm of June 25, 0.53 inch. Soil moist and firm before rain. Corn 15 inches high. Gullies from previous rain remain.

<sup>7</sup> Total rainfall for storm of Aug. 1, 0.34 inch. Soil loose and dry before rain. Corn 40 inches high. Damaged by drought and grasshoppers.

<sup>8</sup> Total rainfall for storm of Aug. 7, 0.78 inch. Soil dry before rain. Corn 42 inches high, very poor.

<sup>9</sup> Total rainfall for storm of Aug. 11, 0.57 inch. Soil dry before rain. Corn 42 inches high, very poor.

<sup>10</sup> Run-off from melting snow.

<sup>11</sup> Total rainfall for storm of Mar. 1-2, 0.45 inch. Soil dry before rain. Corn stalks from previous year remained on field.

<sup>12</sup> Total rainfall for storm of May 17, 0.94 inch. Soil moist before rain. Oats in fair condition, 5 inches high. Soil fairly well protected.

<sup>13</sup> Total rainfall for storm of June 8, 1.13 inches. Soil dry before rain. Oats 14 inches high, headed, and in fair condition.



TABLE 42.—Run-off from watershed 15-H, April 15, 1939, to December 31, 1940

LOCATION: Latitude 40°15'24", longitude 98°22'53".

## PHYSICAL CHARACTERISTICS:

Drainage area.—3.62 acres.

Length of principal watercourse.—525 feet.

Topography.—Undulating, well drained.

Slope.—Average slope is 5.8 percent. Three percent of the watershed has a slope of less than 2 percent; 23 percent, 2 to 5 percent; 62 percent, 5 to 8 percent; 11 percent, 8 to 12 percent; and 1 percent has a slope of 12 percent or more.

Erosion condition.—No gullies or depressions. The area has lost 25 to 50 percent of the topsoil.

Soil.—Hastings silt loam, 75 percent; Nuckolls silty clay loam, 16 percent; Colby silt loam, 9 percent. The Nuckolls silty clay loam and Colby silt loam are in the lower part of the area.

## LAND USE AND VEGETAL COVER:

Land use distribution.—Cultivated land, 100 percent.

Vegetal cover and soil condition.—The crop for 1939 was corn planted in straight rows and that for 1940 was oats planted on the contour. Cultural operations in 1939 were as follows:

April 24, single-disked in straight lines, east and west.

May 15, corn planted in straight rows with lister, east and west.

June 3, corn cultivated with go-dig cultivator.

June 14, corn cultivated with go-dig cultivator.

June 30, corn cultivated with shovel cultivator.

The corn was a failure both for grain and forage. Stalks at maturity were about 40 inches high. They were left standing in the field.

Cultural operations in 1940 were as follows:

March 29, double-disked on the contour.

April 1, oats planted on the contour with grain drill.

June 29, oats harvested. Yield 10.8 bushels an acre.

August 15-16, plowed in straight lines, about 5 inches deep, with moldboard plow.

September 18, harrowed in straight lines with peg-tooth harrow.

September 26, planted to winter wheat, in straight rows, with grain drill.

The wheat sprouted and thrived, reaching a height of 3 inches at the end of the season.

## MEASUREMENTS:

Precipitation.—Rainfall was measured at recording rain gage C24R (fig. 2). Snowfall was measured by weighing and recording rain and snow gages and by cooperative observers' measurements. Snow inventory on the watershed was obtained by inspection.

Run-off.—Run-off was measured by an H flume 3 feet deep.

Changes in instrumentation during period.—None.

## SUMMARY OF RECORDS:

Run-off.—Annual run-off amount 1940, 0.078 inch. Maximum rate of run-off 1939, 1.11 inches per hour, August 11; maximum rate 1940, 0.118 inch per hour, June 8.

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1939				1939				1939				1939			
May 20 <sup>1</sup>				May 22				June 1				June 9			
a. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches
5:42-----	0	0	0	3:13-----	T	0.0012		6:13-----	0.01	0.0038	0.0002	11:13-----	T	0.0003	
:43-----	T	.0007		:14-----	T	.0012		:14-----	.01	.0029	.0003	:19-----	T	.0002	
:44-----	T	.0013		:15-----	T	.0010		:15-----	.01	.0029		:20-----	T	.0002	
:45-----	.01	.0033		:16-----	T	.0007		:16-----	.01	.0029		:21-----	T	.0004	
:46-----	.03	.0077	.0001	:17-----	T	.0006		:17-----	.01	.0029		:22-----	T	.0004	
:47-----	.04	.0121	.0003	:18-----	T	.0005		:18-----	.01	.0029		:23-----	T	.0004	
:48-----	.05	.0125	.0005	:19-----	T	.0003		:19-----	.01	.0029		:24-----	T	.0005	
:49-----	.04	.0112	.0007	:20-----	T	.0002		:20-----	.01	.0031		:25-----	T	.0005	
:50-----	.04	.0112	.0009	:21-----	T	.0001		:21-----	.01	.0035	.0004	:26-----	T	.0005	
:51-----	.04	.0112	.0011	:22-----	0	0	0.0009	:22-----	.01	.0036	.0005	:27-----	T	.0006	
:52-----	.04	.0112	.0013					:23-----	.01	.0039	.0006	:28-----	T	.0006	
:53-----	.03	.0075	.0015	May 26 <sup>3</sup>				:24-----	.01	.0041	.0007	:29-----	T	.0006	
:54-----	.02	.0061	.0016	p. m.				:25-----	.01	.0039	.0008	:30-----	T	.0006	
:55-----	.02	.0046	.0017	8:57-----	0	0	0	:26-----	.01	.0039	.0009	:31-----	T	.0004	
:56-----	.01	.0030	.0018	:58-----	.01	.0016		:27-----	.01	.0039	.0010	:32-----	T	.0003	
:57-----	.01	.0021		:59-----	.01	.0033		:28-----	.01	.0039	.0011	:33-----	T	.0002	
:58-----	.01	.0020		9:00-----	.02	.0043	.0001	:29-----	.01	.0039	.0012	:34-----	T	.0002	
:59-----	.01	.0014		:01-----	.01	.0033	.0002	:30-----	.01	.0039	.0013	:35-----	T	.0001	
6:00-----	T	.0010		:02-----	.01	.0036	.0003	:31-----	.01	.0039	.0014	:36-----	T		
:01-----	T	.0010		:03-----	.01	.0038	.0004	:32-----	.01	.0039	.0015	:37-----	0	0	0.0001
:02-----	T	.0006		:04-----	.02	.0043	.0005	:33-----	.01	.0039	.0016				
:03-----	T	.0004		:05-----	.01	.0039	.0006	:34-----	.01	.0039	.0017	June 12 <sup>6</sup>			
:04-----	T	.0001		:06-----	.01	.0033	.0007	:35-----	.01	.0039	.0018	p. m.			
:05-----	T	T		:07-----	.01	.0032	.0008	:36-----	.01	.0028	.0019	9:25-----	0	0	0
:06-----	T	T		:08-----	.01	.0029		:37-----	.01	.0024		:26-----	.01	.0040	
:07-----	0	0	.0019	:09-----	.01	.0027		:38-----	.01	.0020		:27-----	.02	.0068	.0001
May 22 <sup>2</sup>				:10-----	.01	.0023		:39-----	.01	.0016		:28-----	.04	.0099	.0002
a. m.				:11-----	.01	.0018		:40-----	T	.0013		:29-----	.04	.0106	.0004
2:57-----	0	0	0	:12-----	.01	.0014		:41-----	T	.0010		:30-----	.03	.0095	.0006
:58-----	.03	.0072	.0001	:13-----	T	.0011		:42-----	T	.0006		:31-----	.03	.0095	.0008
:59-----	.03	.0069	.0002	:14-----	T	.0008		:43-----	T	.0004		:32-----	.03	.0095	.0010
3:00-----	.02	.0051	.0003	:15-----	T	.0007		:44-----	T	.0001		:33-----	.02	.0061	.0011
:01-----	.01	.0037	.0004	:16-----	T	.0007		:45-----	T	T		:34-----	.02	.0046	.0012
:02-----	.01	.0033	.0005	:17-----	T	.0006		:46-----	T	.0001		:35-----	.01	.0030	.0013
:03-----	.01	.0029	.0006	:18-----	T	.0005		:47-----	0	0	.0021	:36-----	.01	.0019	
:04-----	.01	.0025		:19-----	T	.0003		June 9 <sup>5</sup>				:37-----	T	.0013	
:05-----	.01	.0021		:20-----	T	T		p. m.				:38-----	T	.0011	
:06-----	.01	.0018		:21-----	0	0	.0010	9:30-----	0	0	0	:39-----	T	.0006	
:07-----	.01	.0014						:31-----	.01	.0016		:40-----	0	0	.0013
:08-----	T	.0011		June 1 <sup>4</sup>				:32-----	T	.0006		June 15 <sup>7</sup>			
:09-----	T	.0008		p. m.				:33-----	0	0		a. m.			
:10-----	T	.0009		6:10-----	0	0	0	:34-----	0	0		3:23-----	0	0	0
:11-----	T	.0012		:11-----	.01	.0040		:35-----	T	.0001		:24-----	.02	.0063	.0001
:12-----	T	.0012		:12-----	.02	.0047	.0001	:17-----	T	.0002					

See footnotes at end of table, p. 99.



TABLE 42.—Run-off from watershed 15-H, April 15, 1939, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1939				1939				1939				1940			
June 15				June 20				June 21				Feb. 29			
a. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches
3:25	0.06	0.0166	0.0003	2:15	0.01	0.0033	0.1631	8:07	0.16	0.0444	0.0278	4:00	T	0.0006	0.0025
26	0.18	0.0496	0.0009	16	0.01	0.0034	.1632	08	0.14	0.0382	0.0285	5:00	T	0.0005	0.0031
27	0.39	0.106	0.0022	17	0.01	0.0027		09	0.11	0.0301	0.0291	6:00	T	0	0.0033
28	0.92	0.251	0.0052	18	T	0.0010		10	0.10	0.0264	0.0296	30	0	0	0.0033
29	1.43	0.391	0.0106	19	T	0.0002		11	0.08	0.0212	0.0300				
30	1.99	0.546	0.0184	20	0	0	.1632	12	0.06	0.0164	0.0303				
31	2.07	0.567	0.0277					13	0.04	0.0122	0.0305				
32	2.11	0.578	0.0372					14	0.03	0.0083	0.0307				
33	1.96	0.537	0.0465	4:15	0	0	0	15	0.02	0.0063	0.0308				
34	1.70	0.466	0.0549	16	0.02	0.0056		16	0.02	0.0061	0.0309	4:15	0	0	0
35	1.40	0.384	0.0620	17	0.03	0.0077	.0001	17	0.02	0.0061	0.0309	30	T	T	
36	1.03	0.282	0.0676	18	0.05	0.0135	.0003	18	0.01	0.0046	0.0310	5:00	T	T	
37	0.78	0.213	0.0717	19	0.07	0.0204	.0006	19	T	0.0030	0.0311	30	T	.0003	.0001
38	0.58	0.158	0.0748	20	0.09	0.0256	.0010	20	0	0.0010		6:00	T	.0003	.0003
39	0.57	0.157	0.0774	21	0.13	0.0351	.0015					15	T	.0003	.0005
40	0.88	0.242	0.0807	22	0.21	0.0587	.0023					30	T	.0008	.0007
41	0.86	0.236	0.0847	23	0.39	0.106	.0037					7:00	T	.0008	.0009
42	0.53	0.145	0.0879	24	0.75	0.205	.0063					15	T	.0006	.0011
43	0.34	0.0939	0.0899	25	1.18	0.322	.0107					30	T	.0006	.0013
44	0.26	0.0714	0.0913	26	1.16	0.319	.0160	5:28	0	0	0	8:00	T	.0003	.0015
45	0.25	0.0687	0.0925	27	1.19	0.326	.0214	29	0.08	0.0221	0.0002	9:00	T	T	.0017
46	0.20	0.0562	0.0935	28	1.19	0.326	.0268	30	0.05	0.0147	0.0005	30	T	T	
47	0.18	0.0483	0.0944	29	1.12	0.308	.0321	31	0.05	0.0147	0.0007	10:00	0	0	
48	0.13	0.0366	0.0951	30	1.05	0.286	.0371	32	0.05	0.0147	0.0009				
49	0.11	0.0301	0.0957	31	0.99	0.270	.0417	33	0.03	0.0095	0.0011				
50	0.09	0.0252	0.0962	32	0.90	0.248	.0460	34	0.02	0.0054	0.0012				
51	0.06	0.0176	0.0966	33	0.83	0.228	.0500	35	0.01	0.0025	0.0013				
52	0.05	0.0142	0.0969	34	1.42	0.389	.0551	36	T	T					
53	0.04	0.0107	0.0971	35	1.92	0.527	.0627	37	0	0	.0013				
54	0.03	0.0086	0.0973	36	2.26	0.619	.0723								
55	0.02	0.0060	0.0974	37	2.43	0.665	.0830								
56	0.01	0.0037	0.0975	38	2.36	0.646	.0939								
57	0.01	0.0030	0.0976	39	2.09	0.574	.1041								
58	T	0.0019		40	1.79	0.490	.1130								
59	T	0.0010		41	1.54	0.422	.1206								
4:00	T	0.0002		42	1.26	0.344	.1270								
01	0	0	.0976	43	0.93	0.255	.1320								
				44	0.82	0.224	.1360								
June 20 <sup>a</sup>				45	0.77	0.212	.1396								
p. m.				46	0.73	0.199	.1430								
1:25	0	0	0	47	0.55	0.150	.1459								
26	1.05	0.288	.0024	48	0.44	0.121	.1482								
27	1.55	0.425	.0083	49	0.35	0.0955	.1500								
28	1.72	0.472	.0162	50	0.29	0.0792	.1515								
29	1.87	0.512	.0252	51	0.25	0.0687	.1527								
30	1.83	0.501	.0344	52	0.23	0.0618	.1538								
31	1.83	0.501	.0431	53	0.20	0.0537	.1548								
32	1.78	0.489	.0513	54	0.17	0.0460	.1556								
33	1.76	0.481	.0594	55	0.15	0.0410	.1563								
34	1.71	0.468	.0673	56	0.14	0.0384	.1570								
35	1.65	0.452	.0750	57	0.12	0.0317	.1576								
36	1.55	0.424	.0823	58	0.10	0.0275	.1581								
37	1.41	0.385	.0890	59	0.10	0.0260	.1585								
38	1.25	0.343	.0951	5:00	0.08	0.0229	.1589								
39	1.18	0.323	.1007	01	0.07	0.0187	.1592								
40	1.17	0.321	.1068	02	0.06	0.0154	.1595								
41	1.12	0.306	.1119	03	0.04	0.0123	.1597								
42	1.00	0.274	.1168	04	0.04	0.0101	.1599								
43	0.92	0.252	.1206	05	0.03	0.0087	.1601								
44	0.91	0.248	.1241	06	0.03	0.0075	.1602								
45	0.88	0.240	.1283	07	0.02	0.0061	.1603								
46	0.85	0.232	.1322	08	0.02	0.0046	.1604								
47	0.81	0.221	.1369	09	0.01	0.0030	.1605								
48	0.73	0.199	.1403	10	0.01	0.0024									
49	0.66	0.182	.1436	11	0.01	0.0028									
50	0.62	0.169	.1463	12	0.01	0.0024									
51	0.56	0.154	.1489	13	0.01	0.0020									
52	0.48	0.132	.1512	14	0.01	0.0016									
53	0.39	0.108	.1531	15	T	0.0010									
54	0.32	0.0872	.1543	16	T	0.0003									
55	0.24	0.0667	.1562	17	T	0.0002									
56	0.17	0.0473	.1572	18	T	0.0005									
57	0.15	0.0411	.1579	19	0	0	.1607								
58	0.13	0.0366	.1585												
59	0.12	0.0317	.1591	June 21 <sup>a</sup>											
2:00	0.10	0.0275	.1596	p. m.											
01	0.10	0.0260	.1600	7:53	0	0	0								
02	0.09	0.0235	.1604	54	0.20	0.0560	.0005								
03	0.08	0.0210	.1608	55	0.38	0.105	.0108								
04	0.07	0.0187	.1611	56	0.51	0.140	.0038								
05	0.06	0.0165	.1614	57	0.69	0.188	.0065								
06	0.05	0.0144	.1617	58	0.76	0.209	.0098								
07	0.05	0.0128	.1619	59	0.75	0.205	.0133								
08	0.04	0.0120	.1621	8:00	0.60	0.164	.0164								
09	0.04	0.0109	.1623	01	0.53	0.145	.0190								
10	0.03	0.0096	.1625	02	0.44	0.120	.0212								
11	0.03	0.0086	.1627	03	0.39	0.106	.0247								
12	0.03	0.0078	.1628	04	0.32	0.0888	.0271								
13	0.02	0.0064	.1629	05	0.25	0.0683	.0260								
14	0.02	0.0046	.1630	06	0.19	0.0530	.0270								

See footnotes at end of table.



TABLE 42.—Run-off from watershed 15-H, April 15, 1939, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1940				1940				1940				1940			
Mar. 15				Mar. 16				June 8				June 8			
p. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches
4:30-----	0.01	0.0029	0.0055	1:55-----	0.01	0.0024	0.0061	8:13-----	0.01	0.0020	0.0020	8:54-----	0.10	0.0261	0.0371
:45-----	.01	.0024	.0061	2:00-----	.01	.0024	.0063	:14-----	.01	.0016		:55-----	.08	.0226	.0375
5:00-----	.01	.0020	.0067	:30-----	.01	.0020	.0074	:15-----	T	.0012		:56-----	.08	.0219	.0379
:30-----	T	.0012	.0075	:35-----	T	.0012	.0075	:16-----	T	.0012		:57-----	.07	.0205	.0383
6:00-----	T	.0009	.0080	:40-----	.01	.0015	.0076	:17-----	T	.0012		:58-----	.06	.0158	.0386
:30-----	T	.0006	.0084	:45-----	.01	.0016	.0077	:18-----	T	.0012		:59-----	.05	.0131	.0388
7:00-----	T	T	.0086	3:00-----	.01	.0016	.0081	:19-----	.01	.0025		9:00-----	.04	.0107	.0390
:30-----	T	T		4:00-----	T	.0012	.0095	:20-----	.01	.0034		:01-----	.03	.0090	.0392
8:00-----	0	0	.0086	5:00-----	T	.0012	.0107	:21-----	.01	.0034	0.0001	:02-----	.03	.0074	.0393
Mar. 16 <sup>12</sup>				6:00-----	T	.0009	.0117	:22-----	.01	.0030	.0002	:03-----	.02	.0059	.0394
a. m.				:30-----	T	.0006	.0121	:23-----	.01	.0027		:04-----	.02	.0049	.0395
11:00-----	0	0	0	7:00-----	T	.0003	.0123	:24-----	.01	.0022		:05-----	.01	.0035	.0396
:05-----	T	T		:30-----	T	T	.0124	:25-----	.01	.0020		:10-----	.01	.0018	.0398
:25-----	T	T		:45-----	0	0	.0124	:26-----	.02	.0060	.0003	:15-----	T	.0012	.0399
:30-----	T	.0002		May 17 <sup>13</sup>				:27-----	.08	.0220	.0005	:20-----	T	.0006	.0400
:45-----	T	.0006	.0001	a. m.				:28-----	.20	.0553	.0011	:25-----	T	.0008	.0401
:50-----	T	.0009	.0002	2:22-----	0	0	0	:29-----	.26	.0715	.0022	:30-----	.01	.0015	.0402
:55-----	T	.0012	.0003	:25-----	T	T		:30-----	.29	.0789	.0035	:35-----	T	.0012	
12:00-----	.01	.0015	.0004	:30-----	T	T		:31-----	.32	.0882	.0049	:40-----	.01	.0016	.0403
p. m.				3:00-----	T	.0003	.0001	:32-----	.36	.0973	.0064	:45-----	T	.0012	.0404
12:15-----	.01	.0020	.0008	:30-----	T	.0003	.0003	:33-----	.37	.101	.0081	:50-----	T	.0008	.0405
:20-----	.01	.0020	.0010	4:00-----	T	.0006	.0005	:34-----	.37	.100	.0098	:55-----	T	.0006	.0406
:25-----	.01	.0020	.0012	:30-----	T	T	.0006	:35-----	.38	.103	.0115	10:00-----	T	.0003	
:30-----	.01	.0023	.0014	:15-----	T	T	.0006	:36-----	.39	.106	.0132	:30-----	T	T	
:35-----	.01	.0024	.0016	5:00-----	T	.0005	.0008	:37-----	.41	.112	.0150	11:00-----	T	T	
:40-----	.01	.0029	.0018	:10-----	T	.0006	.0009	:38-----	.43	.117	.0169	:15-----	0	0	.0406
:50-----	.01	.0029	.0023	:15-----	.01	.0016	.0010	:39-----	.43	.118	.0189				
:55-----	.01	.0029	.0025	:30-----	.01	.0020	.0014	:40-----	.40	.111	.0208	Sept. 24 <sup>15</sup>			
1:00-----	.01	.0037	.0028	6:00-----	T	T	.0019	:41-----	.38	.103	.0226	a. m.			
:05-----	.01	.0039	.0031	7:30-----	T	T		:42-----	.36	.0986	.0243	2:31-----	0	0	0
:10-----	.01	.0034	.0034	:45-----	T	.0003		:43-----	.34	.0945	.0259	:32-----	T	.0006	
:15-----	.01	.0029	.0037	8:00-----	T	T		:44-----	.34	.0945	.0275	:33-----	T	.0012	
:00-----	.01	.0039	.0040	10:00-----	T	T		:45-----	.32	.0888	.0290	:34-----	T	.0009	
:25-----	.02	.0045	.0044	:30-----	0	0	.0019	:46-----	.30	.0833	.0304	:35-----	T	.0006	
:30-----	.01	.0034	.0047	June 8 <sup>14</sup>				:47-----	.27	.0745	.0317	:40-----	T	.0006	
:35-----	.01	.0034	.0050	p. m.				:48-----	.24	.0660	.0329	:45-----	T	T	
:40-----	.01	.0039	.0053	8:11-----	0	0	0	:49-----	.21	.0578	.0339	3:00-----	T	T	
:45-----	.01	.0039	.0056	:12-----	.01	.0020		:50-----	.17	.0471	.0348	:15-----	T	T	
:50-----	.01	.0024	.0059					:51-----	.15	.0414	.0355	:30-----	0	0	T
								:52-----	.13	.0353	.0361				
								:53-----	.11	.0299	.0366				

<sup>1</sup> Total rainfall for storm of May 20, 0.82 inch. Soil dry before rain. Corn planted May 15 with lister in straight rows 42 inches apart. Beginning to sprout.

<sup>2</sup> Total rainfall for storm of May 22, 0.33 inch. Soil moist and firm before rain.

<sup>3</sup> Total rainfall for storm of May 26-27, 0.55 inch. Soil dry on surface before rain. Corn 1 inch high.

<sup>4</sup> Total rainfall for storm of June 1, 0.35 inch. Soil moist before rain. Corn 2 inches high.

<sup>5</sup> Total rainfall for storm of June 9, 0.38 inch. Soil wet and plastic before rain. Corn 4 inches high.

<sup>6</sup> Total rainfall for storm of June 12, 0.33 inch. Soil moist before rain. Corn 6 inches high.

<sup>7</sup> Total rainfall for storm of June 15, 0.51 inch. Soil moist from rain of June 12. Corn 8 inches high, cultivated June 14.

<sup>8</sup> Total rainfall for storm of June 20, 0.89 inch. Soil moist. Corn 12 inches high. Little gullying.

<sup>9</sup> Total rainfall for storm of June 21, 0.19 inch. Soil wet and plastic before rain.

<sup>10</sup> Total rainfall for storm of Aug. 7, 0.71 inch. Soil dry before rain. Corn 40 inches high, very poor.

<sup>11</sup> Total rainfall for storm of Aug. 11, 0.51 inch. Soil dry before rain. Corn 40 inches high, very poor. Some erosion occurred.

<sup>12</sup> Run-off from melting snow.

<sup>13</sup> Total rainfall for storm of May 17, 0.86 inch. Soil moist before rain. Oats were in fair condition, 5 inches high. Soil fairly well protected.

<sup>14</sup> Total rainfall for storm of June 8, 1.11 inches. Soil dry before rain. Oats 14 inches high, headed, and in poor condition.

<sup>15</sup> Total rainfall for storm of Sept. 24, 0.66 inch. Soil wet from rains of previous days. Area plowed Aug. 15-16.



TABLE 43.—Run-off from watershed 16—H, April 15, 1939, to December 31, 1940

LOCATION: Latitude 40°15'24", longitude 98°23'05".

## PHYSICAL CHARACTERISTICS:

Drainage area.—3.57 acres.

Length of principal watercourse.—460 feet.

Topography.—Undulating, well drained.

Slope.—Average slope is 4.6 percent. Two percent of the watershed has a slope of less than 2 percent; 61 percent, 2 to 5 percent; 32 percent, 5 to 8 percent; 4 percent, 8 to 12 percent; and 1 percent has a slope of 12 percent or more.

Erosion condition.—No gullies or depressions. Sixty-two percent of the area has lost less than 25 percent of the topsoil; 38 percent of the area has lost 25 to 50 percent of the topsoil.

Soil.—Hastings silt loam, 97 percent; Colby silt loam, 3 percent. The Colby silt loam occurs in the lower part of the watershed.

## LAND USE AND VEGETAL COVER:

Land use distribution.—Cultivated land, 100 percent.

Vegetal cover and soil condition.—The crop for 1939 was oats planted on the contour and that for 1940 was wheat planted in straight rows. Cultural operations in 1939 were as follows:

March 25, double-disked on contour.

March 31, seeded on contour to oats.

June 22, oats so poor that they were not harvested.

A sample yielded 6.64 bushels an acre. Oats at maturity were about 8 inches high.

July 22, plowed in straight lines with moldboard plow.

August 21, double-disked in straight lines.

August 22, harrowed with peg-tooth harrow.

September 20, seeded to wheat in straight rows.

Much of the wheat did not sprout. That which sprouted did not thrive.

Cultural operations in 1940 were as follows:

July 27, tilled about 6 inches deep in straight lines, with wide-shovel duckfoot cultivator.

August 28, tilled about 6 inches deep, in straight lines, with wide-shovel duckfoot cultivator.

## MEASUREMENTS:

Precipitation.—Rainfall was measured at recording rain gage C24R (fig. 2). Snowfall was measured by weighing and recording rain and snow gages, and by cooperative observers' measurements. Snow inventory on the watershed was obtained by inspection.

Run-off.—Run-off was measured by an H flume 3 feet deep.

Changes in instrumentation during period.—None.

## SUMMARY OF RECORDS:

Run-off.—Annual run-off amount 1940, 0.403 inch. Maximum rate of run-off 1939, 0.278 inch per hour, June 15; maximum rate 1940, 1.15 inches per hour, June 8.

Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off
1939			1939			1939			1939		
May 20 <sup>1</sup>			June 12			June 15			June 20		
a. m.	Second-feet	Inches per hour	p. m.	Second-feet	Inches per hour	a. m.	Second-feet	Inches per hour	p. m.	Second-feet	Inches per hour
5:45-----	0	0	9:46-----	0.01	0.0031	3:56-----	0.11	0.0306	1:48-----	0.48	0.134
:46-----	.04	.0104	:47-----	.01	.0024	:57-----	.10	.0265	:49-----	.45	.126
:47-----	.02	.0066	:48-----	.01	.0018	:58-----	.08	.0228	:50-----	.44	.123
:48-----	.03	.0077	:49-----	.01	.0016	:59-----	.07	.0203	:51-----	.43	.120
:49-----	.03	.0089	:50-----	T	.0011	4:00-----	.07	.0190	:52-----	.40	.112
:50-----	.03	.0087	:51-----	T	.0006	:01-----	.06	.0158	:53-----	.35	.0985
:51-----	.03	.0076	:52-----	T	.0006	:02-----	.04	.0118	:54-----	.34	.0938
:52-----	.03	.0079	:53-----	T	.0007	:03-----	.03	.0096	:55-----	.31	.0866
:53-----	.03	.0081	:54-----	T	.0003	:04-----	.03	.0089	:56-----	.27	.0761
:54-----	.03	.0084	:55-----	0	0	:05-----	.03	.0073	:57-----	.26	.0712
:55-----	.03	.0080			.0030	:06-----	.02	.0063	:58-----	.23	.0643
:56-----	.02	.0069	June 15 <sup>2</sup>			:07-----	.02	.0061	:59-----	.21	.0591
:57-----	.02	.0067	a. m.			:08-----	.02	.0051	2:00-----	.19	.0539
:58-----	.02	.0064	3:23-----	0	0	:09-----	.01	.0033	:01-----	.18	.0488
:59-----	.02	.0060	:24-----	.18	.0490	:10-----	.01	.0024	:02-----	.16	.0443
6:00-----	.02	.0048	:25-----	.28	.0775	:11-----	.01	.0027	:03-----	.14	.0384
:01-----	.01	.0031	:26-----	.36	.101	:12-----	.01	.0018	:04-----	.13	.0354
:02-----	.01	.0024	:27-----	.43	.120	:13-----	T	.0008	:05-----	.12	.0345
:03-----	.01	.0018	:28-----	.56	.156	:14-----	T	.0002	:06-----	.11	.0319
:04-----	.01	.0016	:29-----	.73	.202	:15-----	T	.0001	:07-----	.10	.0291
:05-----	T	.0012	:30-----	.84	.232	:16-----	T	.0004	:08-----	.10	.0265
:06-----	T	.0011	:31-----	.91	.252	:17-----	T	.0001	:09-----	.09	.0240
:07-----	T	.0008	:32-----	.98	.272	:18-----	0	0	:10-----	.08	.0215
:08-----	T	.0005	:33-----	1.00	.278	June 20 <sup>4</sup>			:11-----	.07	.0190
:09-----	T	.0002	:34-----	.95	.265	p. m.			:12-----	.06	.0169
:10-----	0	0	:35-----	.86	.240	1:27-----	0	0	:13-----	.05	.0149
June 12 <sup>2</sup>			:36-----	.82	.227	:28-----	.19	.0517	:14-----	.05	.0128
p. m.			:37-----	.73	.204	:29-----	.14	.0396	:15-----	.04	.0106
9:29-----	0	0	:38-----	.67	.186	:30-----	.14	.0386	:16-----	.03	.0089
:30-----	.06	.0179	:39-----	.60	.166	:31-----	.15	.0420	:17-----	.03	.0080
:31-----	.04	.0120	:40-----	.54	.149	:32-----	.19	.0519	:18-----	.02	.0075
:32-----	.04	.0117	:41-----	.48	.132	:33-----	.24	.0666	:19-----	.02	.0067
:33-----	.05	.0126	:42-----	.52	.143	:34-----	.31	.0863	:20-----	.02	.0058
:34-----	.05	.0126	:43-----	.40	.112	:35-----	.34	.0935	:21-----	.02	.0054
:35-----	.04	.0113	:44-----	.28	.0774	:36-----	.38	.104	:22-----	.02	.0043
:36-----	.04	.0113	:45-----	.34	.0934	:37-----	.41	.115	:23-----	.01	.0031
:37-----	.04	.0113	:46-----	.32	.0888	:38-----	.42	.116	:24-----	.01	.0024
:38-----	.04	.0113	:47-----	.29	.0819	:39-----	.46	.128	:25-----	.01	.0019
:39-----	.04	.0113	:48-----	.27	.0758	:40-----	.45	.125	:26-----	.01	.0020
:40-----	.04	.0113	:49-----	.24	.0671	:41-----	.45	.126	:27-----	.01	.0017
:41-----	.03	.0084	:50-----	.20	.0569	:42-----	.46	.127	T		.0013
:42-----	.03	.0073	:51-----	.19	.0520	:43-----	.46	.128	T		.0009
:43-----	.02	.0061	:52-----	.18	.0488	:44-----	.47	.131	T		.0006
:44-----	.02	.0051	:53-----	.16	.0434	:45-----	.49	.136	T		.0004
:45-----	.01	.0039	:54-----	.14	.0384	:46-----	.48	.134	T		.0001
			:55-----	.12	.0339	:47-----	.48	.134	0	0	.0611

See footnotes at end of table, p. 102



TABLE 43.—Run-off from watershed 16-H, April 15, 1939, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off					
1939							1939							1940						
June 20							June 21							May 17						
<i>p. m.</i>	<i>Second-foot</i>	<i>Inches per hour</i>	<i>Inches</i>	<i>p. m.</i>	<i>Second-foot</i>	<i>Inches per hour</i>	<i>Inches</i>	<i>a. m.</i>	<i>Second-foot</i>	<i>Inches per hour</i>	<i>Inches</i>	<i>a. m.</i>	<i>Second-foot</i>	<i>Inches per hour</i>	<i>Inches</i>					
4:25	0	0	0	8:04	0.05	0.0134	0.0025	3:55	T	0.0006		5:43	0.04	0.0113	0.1179					
4:26	0.06	0.0159	0.0001	8:05	0.05	0.0131	0.0027	3:56	0.01	0.0020		5:44	0.03	0.0096	0.1181					
4:27	0.07	0.0197	0.0004	8:06	0.04	0.0109	0.0029	3:57	0.01	0.0034		5:45	0.03	0.0088	0.1183					
4:28	0.08	0.0212	0.0007	8:07	0.04	0.0100	0.0031	3:58	0.02	0.0052	0.0002	5:46	0.03	0.0080	0.1184					
4:28	0.07	0.0191	0.0010	8:08	0.03	0.0093	0.0033	3:59	0.03	0.0080	0.0003	5:47	0.03	0.0073	0.1185					
4:30	0.05	0.0149	0.0013	8:09	0.03	0.0087	0.0035	4:00	0.05	0.0131	0.0005	5:48	0.02	0.0065	0.1186					
4:31	0.05	0.0149	0.0015	8:10	0.03	0.0088	0.0036	4:01	0.07	0.0191	0.0008	5:49	0.02	0.0058	0.1187					
4:32	0.06	0.0170	0.0018	8:11	0.03	0.0097	0.0038	4:02	0.08	0.0213	0.0011	5:50	0.02	0.0052	0.1188					
4:33	0.08	0.0211	0.0021	8:12	0.03	0.0097	0.0040	4:03	0.09	0.0261	0.0015	5:55	0.01	0.0034	0.1192					
4:34	0.11	0.0302	0.0025	8:13	0.03	0.0097	0.0042	4:04	0.11	0.0314	0.0020	6:00	0.01	0.0021	0.1194					
4:35	0.17	0.0479	0.0031	8:14	0.03	0.0097	0.0044	4:05	0.14	0.0403	0.0026	6:01	T	0.0008	0.1198					
4:36	0.23	0.0634	0.0040	8:15	0.03	0.0089	0.0046	4:06	0.17	0.0467	0.0033	6:02	T	0.0006	0.1200					
4:37	0.31	0.0851	0.0052	8:16	0.03	0.0075	0.0047	4:07	0.18	0.0500	0.0041	6:03	T	0.0009	0.1202					
4:38	0.41	0.114	0.0069	8:17	0.02	0.0068	0.0048	4:08	0.19	0.0536	0.0050	6:04	T	0.0008	0.1204					
4:39	0.48	0.134	0.0090	8:18	0.02	0.0062	0.0049	4:09	0.22	0.0611	0.0060	6:05	T	0.0008	0.1206					
4:40	0.52	0.143	0.0113	8:19	0.02	0.0056	0.0050	4:10	0.21	0.0575	0.0070	6:06	T	0.0009	0.1208					
4:41	0.56	0.156	0.0138	8:20	0.02	0.0050	0.0051	4:11	0.23	0.0631	0.0080	6:07	T	0.0009	0.1210					
4:42	0.59	0.163	0.0165	8:21	0.02	0.0045	0.0052	4:12	0.21	0.0575	0.0090	6:08	T	0.0006	0.1211					
4:43	0.61	0.170	0.0193	8:22	0.01	0.0040	0.0053	4:13	0.19	0.0517	0.0099	6:09	0.01	0.0019	0.1212					
4:44	0.62	0.171	0.0221	8:23	0.01	0.0034	0.0054	4:14	0.17	0.0483	0.0107	6:10	0.01	0.0016	0.1214					
4:45	0.60	0.166	0.0249	8:24	0.01	0.0030	0.0055	4:15	0.16	0.0450	0.0115	6:11	T	0.0009	0.1217					
4:46	0.60	0.166	0.0277	8:25	0.01	0.0025	0.0056	4:16	0.16	0.0433	0.0122	6:12	T	0.0009	0.1219					
4:47	0.60	0.166	0.0305	8:26	0.01	0.0020	0.0057	4:17	0.14	0.0403	0.0129	6:13	T	0.0006	0.1223					
4:48	0.52	0.144	0.0331	8:27	0.01	0.0017	0.0058	4:18	0.13	0.0372	0.0135	6:14	T	0.0006	0.1226					
4:49	0.47	0.132	0.0354	8:28	T	0.0013	0.0059	4:19	0.12	0.0342	0.0141	6:15	T	0.0006	0.1229					
4:50	0.45	0.124	0.0375	8:29	T	0.0009	0.0060	4:20	0.12	0.0328	0.0147	6:16	T	0.0005	0.1232					
4:51	0.42	0.118	0.0395	8:30	T	0.0010	0.0061	4:21	0.11	0.0314	0.0152	6:17	T	0.0002	0.1234					
4:52	0.39	0.109	0.0414	8:31	T	0.0012	0.0062	4:22	0.10	0.0286	0.0157	6:18	T	T						
4:53	0.36	0.100	0.0431	8:32	T	0.0010	0.0063	4:23	0.10	0.0274	0.0162	6:19	T	T						
4:54	0.33	0.0917	0.0447	8:33	T	0.0009	0.0064	4:24	0.10	0.0269	0.0167	6:20								
4:55	0.33	0.0909	0.0462	8:34	T	0.0008	0.0065	4:25	0.10	0.0269	0.0171	6:21	<i>p. m.</i>							
4:56	0.31	0.0867	0.0477	8:35	T	0.0003	0.0066	4:26	0.10	0.0269	0.0175	6:22	T	T						
4:57	0.29	0.0793	0.0491	8:36	0	0	0.0067	4:27	0.10	0.0286	0.0198	6:23	0	0	0.1234					
4:58	0.25	0.0690	0.0503					4:28	0.12	0.0342	0.0203	6:24								
4:59	0.23	0.0626	0.0514	July 1 <sup>st</sup>				4:29	0.16	0.0433	0.0209	6:25	June 8 <sup>th</sup>							
5:00	0.21	0.0585	0.0524	<i>a. m.</i>				4:30	0.19	0.0536	0.0217	6:26	<i>p. m.</i>							
5:01	0.21	0.0576	0.0534	4:58	0	0	0	4:31	0.26	0.0733	0.0228	6:27	0	0	0					
5:02	0.19	0.0539	0.0543	4:59	0.15	0.0429	0.0004	4:32	0.30	0.0822	0.0241	6:28	0.01	0.0029						
5:03	0.18	0.0506	0.0552	5:00	0.06	0.0169	0.0009	4:33	0.38	0.106	0.0257	6:29	0.01	0.0025						
5:04	0.17	0.0467	0.0560	5:01	0.06	0.0169	0.0012	4:34	0.33	0.0914	0.0273	6:30	0.01	0.0027						
5:05	0.16	0.0436	0.0568	5:02	0.07	0.0190	0.0015	4:35	0.33	0.0914	0.0288	6:31	0.02	0.0075	0.0001					
5:06	0.14	0.0402	0.0575	5:03	0.08	0.0232	0.0019	4:36	0.33	0.0914	0.0303	6:32	0.03	0.0082	0.0002					
5:07	0.13	0.0357	0.0581	5:04	0.09	0.0257	0.0023	4:37	0.33	0.0914	0.0318	6:33	0.05	0.0131	0.0004					
5:08	0.11	0.0306	0.0587	5:05	0.10	0.0271	0.0027	4:38	0.33	0.0914	0.0333	6:34	0.07	0.0207	0.0007					
5:09	0.10	0.0277	0.0592	5:06	0.10	0.0272	0.0032	4:39	0.35	0.0964	0.0348	6:35	0.14	0.0397	0.0012					
5:10	0.10	0.0265	0.0597	5:07	0.09	0.0261	0.0036	4:40	0.36	0.101	0.0364	6:36	0.44	0.124	0.0026					
5:11	0.09	0.0240	0.0601	5:08	0.08	0.0214	0.0040	4:41	0.37	0.104	0.0397	6:37	0.91	0.252	0.0057					
5:12	0.08	0.0215	0.0605	5:09	0.07	0.0199	0.0043	4:42	0.40	0.112	0.0415	6:38	1.78	0.494	0.0119					
5:13	0.07	0.0190	0.0608	5:10	0.06	0.0176	0.0046	4:43	0.42	0.117	0.0433	6:39	2.29	0.636	0.0212					
5:14	0.06	0.0169	0.0611	5:11	0.05	0.0149	0.0049	4:44	0.42	0.117	0.0452	6:40	3.11	0.864	0.0337					
5:15	0.05	0.0149	0.0614	5:12	0.05	0.0134	0.0051	4:45	0.42	0.117	0.0472	6:41	3.57	0.992	0.0492					
5:16	0.05	0.0128	0.0616	5:13	0.05	0.0129	0.0053	4:46	0.44	0.123	0.0492	6:42	4.06	1.13	0.0669					
5:17	0.04	0.0114	0.0618	5:14	0.04	0.0114	0.0055	4:47	0.48	0.134	0.0513	6:43	4.15	1.15	0.0859					
5:18	0.04	0.0109	0.0620	5:15	0.04	0.0102	0.0057	4:48	0.49	0.137	0.0536	6:44	3.95	1.10	0.1046					
5:19	0.04	0.0098	0.0622	5:16	0.03	0.0093	0.0059	4:49	0.53	0.146	0.0560	6:45	3.71	1.03	0.1223					
5:20	0.03	0.0084	0.0624	5:17	0.03	0.0081	0.0060	4:50	0.55	0.153	0.0585	6:46	3.31	0.920	0.1385					
5:21	0.03	0.0075	0.0625	5:18	0.02	0.0064	0.0061	4:51	0.60	0.166	0.0612	6:47	2.76	0.767	0.1526					
5:22	0.02	0.0067	0.0626	5:19	0.02	0.0043	0.0062	4:52	0.63	0.174	0.0642	6:48	2.46	0.683	0.1647					
5:23	0.02	0.0058	0.0627	5:20	0.01	0.0033	0.0063	4:53	0.62	0.172	0.0663	6:49	2.15	0.597	0.1753					
5:24	0.03	0.0082	0.0628	5:21	0.01	0.0031	0.0064	4:54	0.57	0.159	0.0682	6:50	1.91	0.531	0.1847					
5:25	0.02	0.0047	0.0629	5:22	0.01	0.0030	0.0065													



TABLE 43.—Run-off from watershed 16-H, April 15, 1939, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1940				1940				1940				1940			
June 8				June 8				June 8				June 9			
p. m.	Second-feet	Inches per hour	Inches	p. m.	Second-feet	Inches per hour	Inches	p. m.	Second-feet	Inches per hour	Inches	a. m.	Second-feet	Inches per hour	Inches
9:06-----	0.02	0.0046	0.2761	9:25-----	0.01	0.0029	0.2771	10:00-----	0.01	0.0025	0.2785	12:30-----	T	T	0.2800
:07-----	.01	.0040	.2762	:30-----	.01	.0029	.2773	11:00-----	.01	.0020	.2787	1:00-----	T	T	
:08-----	.01	.0038	.2763	:35-----	.01	.0029	.2775	:15-----	.01	.0016	.2791	:30-----	0	0	.2800
:09-----	.01	.0036	.2764	:40-----	.01	.0029	.2777	:30-----	T	.0012	.2795				
:10-----	.01	.0033	.2765	:45-----	.01	.0025	.2779	:45-----	T	.0006	.2797				
:15-----	.01	.0026	.2767	:50-----	.01	.0029	.2781	12:00-----	T	.0005	.2799				
:20-----	.01	.0025	.2769	:55-----	.01	.0028	.2783								

<sup>1</sup> Total rainfall for storm of May 20, 0.82 inch. Soil dry before rain. Oats planted on contour. Oats 5 inches high.

<sup>2</sup> Total rainfall for storm of June 12, 0.33 inch. Soil moist before rain. Oats 12 inches high.

<sup>3</sup> Total rainfall for storm of June 15, 0.51 inch. Soil moist from rain of June 12. Oats 12 inches high, thin.

<sup>4</sup> Total rainfall for storm of June 20, 0.89 inch. Soil moist before rain. Oats 12 inches high. Little gully or washing.

<sup>5</sup> Total rainfall for storm of June 21, 0.19 inch. Soil wet and plastic before rain.

<sup>6</sup> Total rainfall for storm of July 1, 0.37 inch. Soil dry on surface before rain. Oats too poor to harvest, 10 inches high.

<sup>7</sup> Total rainfall for storm of Aug. 11, 0.51 inch. Soil dry before rain. Area plowed July 22 in straight lines with moldboard plow.

<sup>8</sup> Total rainfall for storm of May 17, 0.86 inch. Soil moist before rain. Very little wheat sprouted. Field smooth and quite bare of weeds.

<sup>9</sup> Total rainfall for storm of June 8, 1.11 inches. Soil dry before rain. Russian thistles beginning to grow in this area. No wheat remained.

TABLE 44.—Run-off from watershed 17-H, April 15, 1939, to December 31, 1940

LOCATION: Latitude 40°15'31", longitude 98°23'00".

#### PHYSICAL CHARACTERISTICS:

*Drainage area.*—3.96 acres.

*Length of principal watercourse.*—490 feet.

*Topography.*—Undulating, well drained.

*Slope.*—Average slope is 7.0 percent. 3 percent of the watershed has a slope of less than 2 percent; 27 percent, 2 to 5 percent, 38 percent, 5 to 8 percent; 27 percent, 8 to 12 percent; and 5 percent has a slope of 12 percent or more.

*Erosion condition.*—No depressions are present in this area. The watershed has occasional small gullies that are filled up by farm operations but appear again after storms that produce run-off; 40 percent of the area has lost less than 25 percent of the topsoil; 60 percent of the area has lost 25 to 50 percent of the topsoil.

*Soil.*—Hastings silt loam, 62 percent; Nuckolls-Holdrege silty clay loam complex, 32 percent; Holdrege silty clay loam, 6 percent. The Nuckolls-Holdrege silty clay loam complex and the Holdrege silty clay loam occupy the lower and steeper parts of the watershed.

#### LAND USE AND VEGETAL COVER:

*Land use distribution.*—Cultivated land, 100 percent.

*Vegetal cover and soil condition.*—The crop for 1939 was oats planted in straight rows and that for 1940 was corn planted on the contour. Cultural operations in 1939 were as follows:

March 25, double-disked in straight lines, north and south.

March 31, seeded to oats in straight rows.

June 22, oats so short and poor not harvested. Yield of sample 4.53 bushels an acre.

Cultural operations in 1940 were as follows:

April 16, single-disked on the contour.

May 13, corn planted on the contour with lister in rows 42 inches apart.

June 7, corn cultivated with go-dig cultivator.

June 20, corn cultivated with go-dig cultivator.

The crop was a failure, both for forage and grain. A sample yielded 1,676 pounds of forage an acre and 228 pounds of grain an acre. The stalks at maturity were 4 feet high. They were left standing in the field.

#### MEASUREMENTS:

*Precipitation.*—Rainfall was measured at recording rain gage C24R (fig. 2). Snowfall was measured by weighing and recording rain and snow gages and by cooperative observers' measurements. Snow inventory on the watershed was obtained by inspection.

*Run-off.*—Run-off was measured by an H flume 3 feet deep.

*Changes in instrumentation during period.*—None.

#### SUMMARY OF RECORDS:

Annual run-off amount 1940, 0.021 inch. Maximum rate of run-off 1939, 1.667 inches per hour, August 11; maximum rate 1940, 0.110 inch per hour, June 8.

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1939				1939				1939				1939			
May 20 <sup>1</sup>				May 20				May 20				May 22 <sup>2</sup>			
a. m.	Second-feet	Inches per hour	Inches	a. m.	Second-feet	Inches per hour	Inches	a. m.	Second-feet	Inches per hour	Inches	a. m.	Second-feet	Inches per hour	Inches
5:38-----	0	0	0	5:50-----	1.04	0.260	0.0509	6:02-----	0.21	0.0528	0.0789	2:50-----	0	0	0
:39-----	.31	.0776	.0006	:51-----	.92	.230	.0550	:03-----	.16	.0403	.0797	:51-----	.09	.0238	.0002
:40-----	.54	.135	.0024	:52-----	.86	.215	.0587	:04-----	.13	.0335	.0803	:52-----	.13	.0324	.0007
:41-----	.72	.180	.0050	:53-----	.77	.192	.0621	:05-----	.10	.0242	.0808	:53-----	.20	.0507	.0014
:42-----	.97	.242	.0085	:54-----	.65	.164	.0650	:06-----	.08	.0199	.0812	:54-----	.29	.0730	.0024
:43-----	1.22	.306	.0131	:55-----	.59	.149	.0677	:07-----	.06	.0142	.0815	:55-----	.41	.102	.0039
:44-----	1.42	.355	.0186	:56-----	.56	.133	.0701	:08-----	.04	.0090	.0817	:56-----	.46	.116	.0057
:45-----	1.50	.376	.0247	:57-----	.47	.118	.0722	:09-----	.02	.0046	.0818	:57-----	.44	.111	.0076
:46-----	1.43	.358	.0308	:58-----	.40	.0999	.0740	:10-----	T	.0002		:58-----	.43	.107	.0094
:47-----	1.26	.316	.0364	:59-----	.34	.0841	.0755	:11-----	0	0	.0818	:59-----	.42	.106	.0112
:48-----	1.18	.296	.0415	6:00-----	.30	.0756	.0768					3:00-----	.37	.0926	.0129
:49-----	1.14	.286	.0463	:01-----	.24	.0612	.0779					:01-----	.35	.0880	.0144

See footnotes at end of table, p. 105.



TABLE 44.—Run-off from watershed 17-H, April 15, 1939, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1939				1939				1939				1939			
May 22				June 12				June 20				June 21			
a. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches
3:02	0.33	0.0822	0.0158	9:36	0.54	0.135	0.0685	1:50	0.57	0.143	0.1493	8:10	0.01	0.0025	0.0252
3:03	.30	.0744	.0171	3:37	.50	.124	.0707	5:1	.49	.123	.1515	11	.01	.0013	
3:04	.26	.0642	.0183	3:38	.47	.117	.0727	5:2	.41	.103	.1534	12	T	.0012	
3:05	.21	.0515	.0193	3:39	.38	.0940	.0745	5:3	.33	.0829	.1550	13	T	.0004	
3:06	.19	.0486	.0201	4:0	.29	.0718	.0759	5:4	.28	.0704	.1563	14	0	0	.0252
3:07	.17	.0416	.0209	4:1	.25	.0623	.0770	5:5	.21	.0525	.1573				
3:08	.13	.0336	.0215	4:2	.22	.0551	.0780	5:6	.13	.0319	.1580	June 25 <sup>9</sup>			
3:09	.11	.0273	.0220	4:3	.18	.0456	.0788	5:7	.09	.0234	.1585	a. m.			
3:10	.08	.0212	.0224	4:4	.16	.0405	.0795	5:8	.05	.0133	.1588	3:18	0	0	0
3:11	.07	.0185	.0227	4:5	.12	.0301	.0801	5:9	.04	.0111	.1590	19	.05	.0125	.0001
3:12	.06	.0143	.0230	4:6	.07	.0168	.0805	2:00	.03	.0074	.1592	20	.03	.0086	.0003
3:13	.04	.0091	.0232	4:7	.05	.0127	.0807	2:01	.02	.0041	.1593	21	.04	.0093	.0005
3:14	.02	.0051	.0233	4:8	.03	.0082	.0809	2:02	.01	.0025	.1594	22	.04	.0102	.0007
3:15	T	.0011	.0234	4:9	.01	.0022	.0810	2:03	.01	.0013		23	.04	.0102	.0009
3:16	0	0	.0234	5:0	T	.0007		2:04	T	.0012		24	.03	.0086	.0011
May 26 <sup>3</sup>				5:1	0	0	.0810	2:05	0	.0004		25	.03	.0077	.0012
p. m.				June 15 <sup>6</sup>				2:06	T	0	.1594	26	.03	.0066	.0013
9:00	0	0	0	a. m.	0	0	0	4:22	0	0	0	27	.02	.0057	.0014
9:01	.02	.0060	.0001	3:24	0	0	0	4:23	.05	.0130	.0001	28	.02	.0044	.0015
9:02	.03	.0067	.0001	25	2.48	.621	.0052	24	.15	.0383	.0005	29	.01	.0030	.0016
9:03	.03	.0084	.0002	26	4.81	1.21	.0204	25	.49	.123	.0018	30	.01	.0025	
9:04	.04	.0089	.0003	27	5.50	1.38	.0419	26	.93	.233	.0048	31	.01	.0027	
9:05	.04	.0101	.0005	28	5.58	1.40	.0650	27	1.24	.309	.0093	32	.01	.0023	
9:06	.04	.0109	.0007	29	6.27	1.57	.0897	28	1.43	.358	.0149	33	.01	.0018	
9:07	.05	.0120	.0009	30	6.28	1.57	.1159	29	1.46	.364	.0209	34	.01	.0015	
9:08	.05	.0118	.0011	31	5.73	1.44	.1410	30	1.39	.348	.0268	35	T	.0012	
9:09	.04	.0099	.0013	32	4.86	1.22	.1631	31	1.22	.306	.0322	36	T	.0010	
9:10	.03	.0084	.0015	33	4.43	1.11	.1825	32	.99	.248	.0368	37	T	.0008	
9:11	.02	.0054	.0016	34	3.84	.962	.1998	33	.83	.208	.0406	38	T	.0005	
9:12	.02	.0038	.0017	35	2.76	.690	.2136	34	1.02	.255	.0445	39	T	.0002	
9:13	.01	.0030	.0018	36	2.38	.595	.2243	35	1.35	.338	.0494	40	0	0	.0018
9:14	.01	.0021		37	2.11	.528	.2337	36	1.94	.487	.0563	July 1 <sup>10</sup>			
9:15	.01	.0016		38	1.33	.332	.2409	37	2.44	.611	.0654	a. m.			
9:16	.01	.0014		39	.81	.202	.2454	38	2.53	.634	.0758	4:56	0	0	0
9:17	T	.0010		40	.63	.157	.2484	39	2.44	.612	.0862	57	.08	.0194	.0002
9:18	T	.0005		41	.59	.147	.2509	40	2.31	.579	.0961	58	.27	.0686	.0009
9:19	T	.0001		42	.51	.127	.2532	41	2.11	.528	.1053	59	.63	.158	.0028
9:20	0	0	.0019	43	.39	.0969	.2551	42	1.64	.412	.1131	5:00	.89	.223	.0060
June 9 <sup>4</sup>				44	.21	.0533	.2564	43	1.24	.310	.1191	01	.90	.224	.0097
p. m.				45	.20	.0495	.2573	44	.98	.246	.1237	02	.82	.205	.0133
10:25	0	0	0	46	.20	.0493	.2581	45	.69	.173	.1272	03	.75	.188	.0166
26	.03	.0063	.0001	47	.20	.0498	.2589	46	.49	.122	.1297	04	.54	.136	.0193
27	.01	.0031	.0002	48	.10	.0240	.2595	47	.28	.0690	.1313	05	.45	.113	.0214
28	.01	.0035	.0003	49	.08	.0207	.2599	48	.25	.0636	.1324	06	.38	.0964	.0231
29	.01	.0037	.0004	50	.03	.0080	.2601	49	.25	.0625	.1334	07	.28	.0692	.0245
30	.01	.0036	.0005	51	0	0	.2602	50	.16	.0397	.1343	08	.15	.0381	.0254
31	.01	.0020		52	.02	.0047		51	.09	.0217	.1348	09	.07	.0175	.0259
32	.01	.0014		53	.02	.0042	.2603	52	.06	.0145	.1351	10	.06	.0141	.0262
33	T	.0009		54	.01	.0030	.2604	53	.07	.0164	.1354	11	.06	.0146	.0264
34	T	.0008		55	.01	.0023		54	.06	.0142	.1357	12	.04	.0097	.0266
35	T	.0006		56	.01	.0020		55	.04	.0101	.1359	13	.02	.0044	.0267
36	T	.0004		57	.01	.0014		56	.03	.0078	.1361	14	.02	.0047	.0268
37	T	.0001		58	T	.0009		57	.02	.0060	.1362	15	.02	.0046	.0269
38	0	0		59	T	.0008		58	.02	.0055	.1363	16	.02	.0044	.0270
11:28	0	0		4:00	T	.0005		59	.02	.0042	.1365	17	.02	.0040	.0271
29	.01	.0014		01	T	.0002	.2605	5:00	.01	.0030		18	.02	.0038	.0272
30	.01	.0016		02	0	0		01	.01	.0021		19	.01	.0033	.0273
31	T	.0012		June 20 <sup>7</sup>				02	.01	.0014		20	.01	.0031	.0274
32	.01	.0015		p. m.	0	0	0	03	T	.0010		21	.01	.0027	
33	.01	.0018		1:21	0	0	0	04	T	.0008		22	.01	.0023	
34	.01	.0020		22	.32	.0796	.0007	05	T	.0002		23	.01	.0018	
35	.01	.0018		23	.42	.104	.0022	06	0	0	.1366	24	.01	.0015	
36	T	.0010		24	.58	.145	.0043	June 21 <sup>8</sup>				25	T	.0012	
37	T	.0008		25	.75	.187	.0071	p. m.				26	T	.0010	
38	T	.0005		26	1.04	.262	.0108	7:46	0	0	0	27	T	.0008	
39	T	.0002		27	1.55	.389	.01620	47	T	.0009		28	T	.0005	
40	T	.0001		28	2.14	.536	.0239	48	T	.0012		29	T	.0002	
41	T	.0001		29	2.30	.576	.0332	49	.01	.0024		30	0	0	.0276
42	0	0	.0008	30	2.34	.586	.0429	50	.02	.0054	.0001	Aug. 1 <sup>11</sup>			
June 12 <sup>5</sup>				31	2.34	.585	.0527	51	.04	.0095	.0002	p. m.			
p. m.				32	1.96	.491	.0617	52	.10	.0252	.0005	7:55	0	0	0
9:21	0	0	0	33	1.75	.439	.0695	53	.34	.0851	.0014	56	.92	.231	.0019
22	.05	.102	.0008	34	1.71	.428	.0767	54	.68	.171	.0035	57	1.83	.457	.0076
23	.66	.166	.0030	35	1.60	.402	.0836	55	.84	.211	.0067	58	1.88	.471	.0153
24	.90	.225	.0063	36	1.36	.342	.0898	56	.78	.196	.0101	59	1.56	.392	.0225
25	1.16	.290	.0106	37	1.25	.314	.0953	57	.67	.168	.0131	8:00	1.33	.333	.0285
26	1.32	.330	.0158	38	1.30	.326	.1006	58	.56	.140	.0157	01	.84	.212	.0330
27	1.47	.367	.0216	39	1.29	.322	.1060	59	.53	.133	.0180	02	.66	.164	.0361
28	1.56	.390	.0279	40	1.25	.312	.1113	8:00	.45	.112	.0200	03	.48	.119	.0385
29	1.57	.394	.0344	41	1.20	.301	.1164	01	.30	.0757	.0216	04	.32	.0805	.0402
30	1.54	.387	.0409	42	1.14	.286	.1213	02	.22	.0563	.0227	05	.15	.0387	.0412
31	1.41	.353	.0471	43	1.08	.270	.1259	03	.18	.0453	.0235	06	.03	.0078	.0416
32	1.25	.314	.0527	44	.98	.246	.1302	04	.13	.0326	.0241	07	.03	.0086	.0417
33	1.16	.289	.0577	45	.87	.218	.1341	05	.06	.0144	.0245	08	0	0	.0418
34	.98	.247	.0622	46	.79	.197	.1376	06	.05	.0120	.0247	Aug. 7 <sup>12</sup>			
35	.75	.188	.0658	47	.79	.197	.1409	07	.04	.0088	.0249	p. m.			
				48	.71	.179	.1440	08	.03	.0078	.0250	4:44	0	0	0
				49	.64	.160	.1468	09	.02	.0052	.0251	45	.07	.0163	.0001

See footnotes at end of table, p. 105.



TABLE 44.—Run-off from watershed 17—H, April 15, 1939, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1939				1939				1939				1940			
Aug. 7				Aug. 7				Aug. 11				June 8			
p. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches
4:46	0.10	0.0262	0.0005	7:51	0.01	0.0027		10:09	2.16	0.540	0.2344	8:26	0.01	0.0034	0.0004
4:47	.20	.0508	.0011	7:52	.01	.0023		10:10	1.61	.404	.2423	8:27	.01	.0033	.0005
4:48	.31	.0764	.0022	7:53	.01	.0018		10:11	1.34	.334	.2485	8:28	.01	.0032	.0006
4:49	.32	.0793	.0035	7:54	.01	.0015		10:12	.94	.237	.2533	8:29	.01	.0031	.0007
4:50	.28	.0701	.0047	7:55	T	.0012		10:13	.61	.153	.2565	8:30	.01	.0031	.0008
4:51	.26	.0652	.0058	7:56	T	.0010		10:14	.32	.0791	.2584	8:31	.01	.0024	
4:52	.24	.0592	.0068	7:57	T	.0008		10:15	.07	.0176	.2592	8:32	.01	.0022	
4:53	.19	.0486	.0077	7:58	T	.0005		10:16	0	0	.2593	8:33	.01	.0026	
4:54	.17	.0427	.0085	7:59	T	.0002		10:17	.02	.0039		8:34	.01	.0026	
4:55	.13	.0324	.0091	8:00	0	0		10:18	.02	.0055	.2594	8:35	.01	.0023	
4:56	.08	.0193	.0095	8:01	0	0		10:19	.03	.0079	.2595	8:36	.01	.0020	
4:57	.08	.0204	.0098	8:02	.01	.0014		10:20	.04	.0091	.2596	8:37	.01	.0018	
4:58	.07	.0172	.0101	8:03	.01	.0026	0.0011	10:21	.02	.0061	.2597	8:38	.01	.0017	
4:59	.06	.0150	.0104	8:04	.02	.0039	.0012	10:22	.03	.0070	.2598	8:39	.01	.0013	
5:00	.05	.0116	.0106	8:05	.02	.0041	.0013	10:23	.01	.0028	.2599	8:40	T	.0011	
5:01	.03	.0078	.0108	8:06	.02	.0046	.0014	10:24	.01	.0015		8:41	T	.0011	
5:02	.02	.0052	.0109	8:07	.02	.0049	.0015	10:25	T	.0003		8:42	T	.0011	
5:03	.01	.0034	.0110	8:08	.02	.0059	.0016	10:26	T	.0002		8:43	T	.0011	
5:04	.01	.0030	.0111	8:09	.03	.0084	.0017	10:27	T	.0001		8:44	T	.0008	
5:05	.01	.0023		8:10	.05	.0123	.0019	10:28	0	0	.2599	8:45	T	.0008	
5:06	.01	.0020		8:11	.06	.0147	.0021					8:46	T	.0007	
5:07	.01	.0014		8:12	.07	.0176	.0024	1940				8:47	T	.0007	
5:08	T	.0006		8:13	.10	.0246	.0028	Mar. 4 14				8:48	T	.0006	.0012
5:09	0	0	.0112	8:14	.11	.0267	.0032	p. m.				8:49	.08	.0212	.0014
				8:15	.11	.0270	.0036	2:45	0	0	0	8:50	.44	.110	.0025
				8:16	.11	.0284	.0041	4:46	T	.0005		8:51	.20	.0501	.0038
2:44	0	0	0	8:17	.11	.0283	.0046	4:47	T	.0005	.0001	8:52	.14	.0361	.0045
2:45	.08	.0202	.0002	8:18	.11	.0283	.0051	4:48	T	.0005	.0003	8:53	.12	.0293	.0050
2:46	.16	.0407	.0007	8:19	.10	.0256	.0055	4:49	T	.0005	.0003	8:54	.09	.0225	.0054
2:47	.44	.111	.0020	8:20	.10	.0245	.0059	4:50	T	.0003	.0005	8:55	.07	.0184	.0057
2:48	.86	.216	.0047	8:21	.09	.0234	.0063	4:51	T	.0003	.0005	8:56	.06	.0147	.0060
2:49	1.71	.429	.0101	8:22	.09	.0235	.0067	4:52	T	T	.0006	8:57	.05	.0114	.0062
2:50	2.61	.654	.0191	8:23	.09	.0235	.0071	4:53	T	T		8:58	.04	.0098	.0064
2:51	2.71	.678	.0302	8:24	.06	.0143	.0076	4:54	0	0	.0006	8:59	.03	.0087	.0066
2:52	2.50	.625	.0411	8:25	.15	.0379	.0082					9:00	.05	.0114	.0068
2:53	2.51	.629	.0515	8:26	.16	.0394	.0088	Mar. 5 14				9:01	.05	.0118	.0070
2:54	2.16	.541	.0612	8:27	.16	.0391	.0095	p. m.				9:02	.05	.0118	.0072
2:55	2.16	.541	.0702	8:28	.14	.0339	.0101	12:43	0	0	0	9:03	.04	.0108	.0074
2:56	1.64	.412	.0781	8:29	.13	.0336	.0107	4:44	T	.0005		9:04	.04	.0098	.0076
2:57	1.36	.341	.0844	8:30	.13	.0324	.0113	4:45	T	.0008		9:05	.04	.0089	.0078
2:58	1.07	.269	.0895	8:31	.13	.0318	.0118	4:46	T	.0008	.0002	9:06	.03	.0087	.0079
2:59	.76	.189	.0933	8:32	.12	.0305	.0123	4:47	T	.0010	.0006	9:07	.03	.0084	.0080
3:00	.54	.134	.0960	8:33	.12	.0308	.0128	4:48	T	.0011	.0006	9:08	.03	.0080	.0081
3:01	.41	.103	.0980	8:34	.13	.0335	.0133	4:49	T	.0011	.0011	9:09	.03	.0078	.0082
3:02	.20	.0507	.0993	8:35	.14	.0353	.0139	4:50	T	.0010	.0016	9:10	.03	.0070	.0083
3:03	.13	.0337	.1000	8:36	.15	.0375	.0145	4:51	T	.0008	.0020	9:11	.03	.0065	.0084
3:04	.10	.0241	.1005	8:37	.16	.0392	.0151	4:52	T	.0005	.0023	9:12	.03	.0074	.0085
3:05	.02	.0044	.1007	8:38	.16	.0391	.0158	4:53	T	.0005	.0025	9:13	.03	.0080	.0086
3:06	.05	.0126	.1008	8:39	.13	.0332	.0164	4:54	T	.0003	.0029	9:14	.03	.0070	.0087
3:07	.09	.0213	.1011	8:40	.12	.0306	.0169	4:55	T	T	.0030	9:15	.03	.0065	.0088
3:08	.08	.0196	.1014	8:41	.11	.0279	.0174	4:56	T	T		9:16	.02	.0058	.0089
3:09	.07	.0169	.1017	8:42	.10	.0254	.0178	4:57	0	0	.0030	9:17	.02	.0056	.0090
3:10	.06	.0142	.1020	8:43	.09	.0225	.0182					9:18	.02	.0051	.0091
3:11	.04	.0112	.1022	8:44	.08	.0189	.0185	Mar. 9 14				9:19	.02	.0050	.0092
3:12	.04	.0095	.1024	8:45	.07	.0165	.0188	p. m.				9:20	.02	.0050	.0093
3:13	.04	.0094	.1026	8:46	.06	.0151	.0191	1:01	0	0	0	9:21	.02	.0055	.0100
3:14	.03	.0086	.1028	8:47	.05	.0132	.0193	1:02	T	.0003		9:22	.02	.0056	.0101
3:15	.03	.0073	.1029	8:48	.04	.0109	.0195	1:03	T	.0003	.0003	9:23	.02	.0057	.0102
3:16	.02	.0055	.1030	8:49	.03	.0081	.0197	1:04	T	.0004		9:24	.02	.0058	.0103
3:17	.02	.0044	.1031	8:50	.03	.0068	.0198	1:05	T	.0004		9:25	.03	.0072	.0104
3:18	.02	.0039	.1032	8:51	.03	.0066	.0199	1:06	T	.0004	.0001	9:26	.03	.0072	.0118
3:19	.01	.0032	.1033	8:52	.02	.0057	.0200	1:07	T	T	.0002	9:27	.03	.0065	.0120
6:00	.01	.0029		8:53	.02	.0044	.0201	1:08	T	T		9:28	.02	.0051	.0123
6:01	.01	.0031		8:54	.01	.0030	.0202	1:09	0	0	.0002	9:29	.01	.0028	.0126
6:02	.01	.0030		8:55	.01	.0023		1:10				9:30	.01	.0022	.0128
6:03	.01	.0028		8:56	.01	.0020		1:11				9:31	.01	.0014	.0130
6:04	.01	.0026		8:57	.01	.0014		1:12				9:32	T	.0011	.0131
6:05	.01	.0022		8:58	T	.0010		1:13				9:33	T	.0008	.0132
6:06	.01	.0016		8:59	T	.0010		1:14				9:34	T	.0005	
6:07	.01	.0014		9:00	T	.0008		1:15	0	0	0	9:35	T	.0005	
6:08	T	.0011		9:01	T	.0005		1:16	T	T		9:36	T	T	
6:09	T	.0009		9:02	T	.0002	.0203	1:17	T	.0003		9:37	T	T	
6:10	T	.0006		9:03	0	0		1:18	T	.0003	.0001	9:38	0	0	.0133
6:11	T	.0004		9:04	0	0		1:19	T	.0005	.0002				
6:12	0	.0001		9:05	0	0									



TABLE 44.—Run off from watershed 17-H, April 15, 1939, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1940				1940				1940				1940			
Nov. 25				Nov. 25				Nov. 25				Nov. 25			
p. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches
3:30-----	T	0.0005	.0001	4:30-----	T	T	0.0005	5:30-----	T	0.0008	0.0008	7:15-----	0.01	0.0015	0.0026
:40-----	T	.0008	.0001	:45-----	T	T		6:00-----	T	.0011	.0013	:30-----	T	.0008	.0029
:45-----	T	.0005	.0001	:50-----	T	T		:30-----	T	.0008	.0018	:45-----	T	T	.0030
4:00-----	T	.0008	.0003	5:00-----	T	.0005	.0005	7:00-----	T	.0011	.0023	:50-----	0	0	.0030

<sup>1</sup> Total rainfall for storm of May 20, 0.82 inch. Soil dry before rain. Planted to oats in straight rows. Oats 5 inches high.

<sup>2</sup> Total rainfall for storm of May 22, 0.33 inch. Soil moist before rain.

<sup>3</sup> Total rainfall for storm of May 26-27, 0.55 inch. Soil dry on surface before rain. Oats 6 inches high.

<sup>4</sup> Total rainfall for storm of June 9, 0.38 inch. Soil wet and plastic before rain. Oats 12 inches high.

<sup>5</sup> Total rainfall for storm of June 12, 0.33 inch. Soil moist before rain. Oats 12 inches high.

<sup>6</sup> Total rainfall for storm of June 15, 0.51 inch. Soil moist from rain of June 12. Oats 12 inches high, very thin.

<sup>7</sup> Total rainfall for storm of June 20, 0.89 inch. Soil moist before rain. Oats 12 inches high. Much washing down grain rows.

<sup>8</sup> Total rainfall for storm of June 21, 0.19 inch. Soil wet and plastic before rain.

<sup>9</sup> Total rainfall for storm of June 25, 0.45 inch. Soil moist and firm. Oats 12 inches high. Too poor to harvest. Washing down grain rows.

<sup>10</sup> Total rainfall for storm of July 1, 0.37 inch. Soil dry on surface before rain.

<sup>11</sup> Total rainfall for storm of Aug. 1, 0.24 inch. Soil dry before rain. Oats, 10 inches high, remain. Russian thistles 4 inches high.

<sup>12</sup> Total rainfall for storm of Aug. 7, 0.71 inch. Soil dry. Oats, 8 inches high, remain. Russian thistles cover field.

<sup>13</sup> Total rainfall for storm of Aug. 11, 0.51 inch. Soil dry before rain. Oats, 8 inches high, remain. Russian thistles cover field.

<sup>14</sup> Run-off from melting snow.

<sup>15</sup> Total rainfall for storm of May 17, 0.86 inch. Soil moist before rain. Corn planted on the contour with lister May 13.

<sup>16</sup> Total rainfall for storm of June 8, 1.11 inches. Soil dry before rain. Corn 2 inches high, cultivated June 7.

<sup>17</sup> Total rainfall for storm of Sept. 24, 0.66 inch. Soil wet from rains of previous days. Corn very poor, about 4 feet high.

<sup>18</sup> Total rainfall for storm of Nov. 25-26, 0.48 inch. Soil moist before rain. Corn stalks remained on field.

TABLE 45.—Run-off from watershed 18-H, July 17, 1939, to December 31, 1940

LOCATION: Latitude 40°16'29", longitude 98°22'13".

#### PHYSICAL CHARACTERISTICS:

*Drainage area.*—3.74 acres.

*Length of principal watercourse.*—525 feet.

*Topography.*—Undulating, well drained.

*Slope.*—Average slope is 4.9 percent: 4 percent of the watershed has a slope of less than 2 percent; 37 percent, 2 to 5 percent; 52 percent, 5 to 8 percent; 6 percent, 8 to 12 percent; and 1 percent has a slope of 12 percent or more.

*Erosion condition.*—There are no depressions or gullies. The area has lost less than 25 percent of the topsoil.

*Soil.*—Hastings silt loam, 100 percent.

*Special features.*—Pasture plot 51-H is within the boundaries of this watershed (fig. 4).

#### LAND USE AND VEGETAL COVER:

*Land use distribution.*—Native pasture, 100 percent.

*Vegetal cover and soil condition.*—The area has suffered from drought for several years. At no time during 1939 and 1940

were the grasses over 1 inch high. The watershed was grazed continuously. Basal cover estimated at 35 to 40 percent.

#### MEASUREMENTS:

*Precipitation.*—Rainfall was measured at recording rain gage A31R before August 25, 1939, B33R thereafter (fig. 2). Snowfall was measured by weighing and recording rain and snow gages and by cooperative observers' measurements. Snow inventory on the watershed was obtained by inspection.

*Run-off.*—Run-off was measured by an H flume 3 feet deep.

*Changes in instrumentation during period.*—B33R installed August 25, 1939.

#### SUMMARY OF RECORDS:

*Run-off.*—Annual run-off amount 1940, 0.475 inch. Maximum rate of run-off 1939, 0.806 inch per hour, August 11; maximum rate 1940, 0.221 inch per hour, May 17.

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1939				1939				1939				1939			
Aug. 1 <sup>1</sup>				Aug. 1				Aug. 1				Aug. 11			
p. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches
7:55-----	0	0	0	8:18-----	0.03	0.0067	0.0091	8:41-----	T	0.0002		10:08-----	2.80	0.744	0.1420
:56-----	.18	.0477	.0004	:19-----	.02	.0058	.0092	:42-----	T	T		:09-----	2.66	.705	.1541
:57-----	.13	.0346	.0011	:20-----	.02	.0050	.0093	:43-----	T	.0001		:10-----	2.55	.676	.1656
:58-----	.14	.0359	.0017	:21-----	.02	.0047	.0094	:44-----	T	T		:11-----	2.40	.638	.1765
:59-----	.15	.0390	.0023	:22-----	.02	.0043	.0095	:45-----	0	0	0.0098	:12-----	2.21	.586	.1867
8:00-----	.14	.0384	.0029	:23-----	.01	.0038	.0096					:13-----	2.04	.540	.1961
:01-----	.14	.0384	.0035	:24-----	.01	.0033	.0097	Aug. 11 <sup>2</sup>				:14-----	1.84	.487	.2047
:02-----	.14	.0384	.0041	:25-----	.01	.0030	.0098	p. m.				:15-----	1.74	.463	.2126
:03-----	.11	.0288	.0047	:26-----	.01	.0027		9:54-----	0	0	0	:16-----	1.66	.439	.2201
:04-----	.10	.0260	.0052	:27-----	.01	.0023		:55-----	.37	.0988	.0008	:17-----	1.59	.422	.2273
:05-----	.09	.0243	.0056	:28-----	.01	.0019		:56-----	.61	.163	.0030	:18-----	1.48	.394	.2341
:06-----	.08	.0218	.0060	:29-----	.01	.0016		:57-----	1.35	.359	.0073	:19-----	1.37	.364	.2404
:07-----	.08	.0210	.0064	:30-----	.01	.0014		:58-----	2.48	.659	.0158	:20-----	1.31	.347	.2463
:08-----	.08	.0219	.0068	:31-----	.01	.0014		:59-----	2.81	.745	.0275	:21-----	1.20	.317	.2518
:09-----	.08	.0201	.0072	:32-----	T	.0013		10:00-----	2.54	.674	.0393	:22-----	1.12	.297	.2569
:10-----	.07	.0186	.0075	:33-----	T	.0011		:01-----	2.64	.701	.0508	:23-----	1.07	.283	.2617
:11-----	.06	.0166	.0078	:34-----	T	.0010		:02-----	2.90	.769	.0630	:24-----	1.00	.265	.2663
:12-----	.06	.0152	.0081	:35-----	T	.0008		:03-----	3.02	.800	.0761	:25-----	.93	.247	.2706
:13-----	.05	.0136	.0083	:36-----	T	.0007		:04-----	3.04	.806	.0895	:26-----	.84	.224	.2745
:14-----	.05	.0121	.0085	:37-----	T	.0006		:05-----	3.04	.806	.1029	:27-----	.78	.208	.2781
:15-----	.04	.0105	.0087	:38-----	T	.0004		:06-----	3.04	.806	.1163	:28-----	.74	.197	.2815
:16-----	.03	.0086	.0089	:39-----	T	.0003		:07-----	2.90	.770	.1294	:29-----	.69	.183	.2847
:17-----	.03	.0073	.0090	:40-----	T	.0003						:30-----	.64	.170	.2876

See footnotes at end of table, p. 107.



TABLE 45.—Run-off from watershed 18-H, July 17, 1939, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1939				1940				1940				1940			
Aug. 11				Feb. 28				Mar. 5				May 17			
p. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches
10:31	0.59	0.157	0.2903	2:00	0.01	0.0016	0.0008	3:30	0.01	0.0024	0.0044	2:38	0.81	0.214	0.0562
32	.55	.146	.2928	30	.01	.0019	.0017	30	.01	.0024	.0056	39	.83	.220	.0598
33	.50	.134	.2951	3:00	.01	.0024	.0028	4:00	.01	.0019	.0067	40	.84	.221	.0635
34	.46	.122	.2972	15	.01	.0028	.0034	15	.01	.0019	.0072	41	.83	.221	.0672
35	.42	.111	.2991	30	.01	.0033	.0042	30	.01	.0018	.0076	42	.80	.213	.0708
36	.38	.101	.3009	45	.01	.0038	.0051	45	.01	.0016	.0080	43	.78	.207	.0743
37	.34	.0912	.3025	4:00	.01	.0038	.0061	5:00	T	.0012	.0084	44	.75	.198	.0777
38	.31	.0814	.3039	30	.01	.0038	.0080	15	T	.0012	.0087	45	.72	.191	.0809
39	.27	.0724	.3052	5:00	.01	.0036	.0098	30	T	.0009	.0089	46	.69	.182	.0840
40	.25	.0653	.3063	15	.01	.0036	.0107	6:00	T	.0006	.0093	47	.64	.170	.0869
41	.23	.0606	.3073	30	.01	.0036	.0116	7:00	T	T	.0096	48	.60	.159	.0896
42	.21	.0556	.3083	6:00	.01	.0033	.0133	8:00	0	0	.0096	49	.56	.148	.0922
43	.19	.0511	.3092	30	.01	.0028	.0148					50	.54	.142	.0946
44	.18	.0465	.3100	7:00	.01	.0019	.0160	Mar. 15 4				51	.49	.131	.0969
45	.16	.0425	.3107	30	T	.0012	.0168	p. m.				52	.49	.131	.0991
46	.14	.0374	.3114	8:00	T	.0006	.0172	40	0	0	0	53	.50	.133	.1013
47	.13	.0340	.3120	30	T	T	.0174	1:39	T	T	T	54	.48	.128	.1035
48	.12	.0320	.3126	9:00	0	0	.0174	40	T	T	T	55	.47	.124	.1056
49	.11	.0293	.3131					50	T	T	T	56	.44	.117	.1076
50	.10	.0269	.3136	Feb. 29 4				55	.01	.0019	.0001	57	.42	.111	.1095
51	.09	.0243	.3140	p. m.				56	.02	.0062	.0002	58	.40	.106	.1113
52	.08	.0223	.3144	12:20	0	0	0	57	.05	.0134	.0004	59	.38	.102	.1130
53	.08	.0213	.3148	21	T	.0003		58	.06	.0162	.0006	3:00	.36	.0965	.1147
54	.08	.0201	.3151	22	T	.0004		59	.06	.0152	.0009	01	.34	.0915	.1163
55	.07	.0181	.3154	23	T	.0005		2:00	.05	.0125	.0011	02	.33	.0867	.1178
56	.06	.0158	.3157	24	T	.0005		05	.03	.0092	.0020	03	.31	.0822	.1192
57	.05	.0143	.3159	25	T	.0005		10	.03	.0084	.0027	04	.29	.0777	.1205
58	.05	.0134	.3161	26	T	.0006		15	.03	.0076	.0034	05	.28	.0732	.1218
59	.05	.0123	.3163	30	T	.0006		30	.03	.0076	.0053	06	.26	.0692	.1230
1:00	.04	.0110	.3165	35	T	.0009	.0001	45	.02	.0062	.0070	07	.25	.0652	.1241
01	.04	.0099	.3167	40	.01	.0019	.0002	3:00	.02	.0056	.0085	08	.23	.0599	.1251
02	.03	.0089	.3169	45	.01	.0024	.0004	15	.02	.0043	.0097	09	.21	.0557	.1261
03	.03	.0079	.3170	50	.01	.0019	.0006	30	.01	.0038	.0107	10	.21	.0549	.1270
04	.03	.0073	.3171	55	.01	.0021	.0008	45	.01	.0028	.0115	11	.19	.0504	.1279
05	.03	.0066	.3172	1:00	.01	.0024	.0010	4:00	.01	.0024	.0121	12	.18	.0469	.1287
06	.02	.0062	.3173	05	.01	.0028	.0012	15	.01	.0019	.0127	13	.16	.0432	.1295
07	.02	.0056	.3174	10	.01	.0038	.0015	30	.01	.0016	.0131	14	.14	.0384	.1302
08	.02	.0051	.3175	15	.02	.0049	.0019	45	T	.0012	.0135	15	.14	.0363	.1308
09	.02	.0046	.3176	20	.02	.0062	.0024	5:00	T	.0009	.0137	16	.13	.0345	.1314
10	.01	.0038	.3177	25	.03	.0076	.0030	15	T	.0006	.0139	17	.12	.0329	.1320
11	.01	.0034	.3178	30	.03	.0084	.0037	30	T	.0005	.0141	18	.11	.0292	.1325
12	.01	.0034	.3179	34	.04	.0108	.0043	6:00	T	T	.0142	19	.10	.0268	.1330
13	.01	.0028	.3180	35	.03	.0076	.0045	8:00	T	T		20	.09	.0242	.1334
14	.01	.0025		40	.02	.0043	.0050	45	0	0	.0142	21	.09	.0226	.1338
15	.01	.0021		45	.02	.0043	.0054	Mar. 16 4				22	.08	.0222	.1342
16	.01	.0017		2:00	.02	.0062	.0067	11:20	a. m.			23	.08	.0211	.1346
17	.01	.0014		15	.03	.0092	.0086	30	0	0	0	24	.08	.0201	.1349
18	T	.0011		30	.04	.0108	.0111	45	T	T	T	25	.07	.0190	.1352
19	T	.0008		45	.04	.0108	.0138	30	T	T	T	26	.07	.0174	.1355
20	T	.0007		3:00	.04	.0108	.0165	45	T	T	T	27	.06	.0154	.1358
21	T	.0007		15	.04	.0100	.0191	50	T	T	T	28	.06	.0151	.1361
22	T	.0006		30	.03	.0092	.0215	12:00	T	.0003	.0001	29	.05	.0141	.1363
23	T	.0004		4:00	.03	.0076	.0257	p. m.				30	.05	.0131	.1365
24	T	.0003		30	.02	.0049	.0288	12:30	T	.0012	.0007	31	.05	.0122	.1367
25	T	.0002		5:00	.01	.0028	.0307	1:00	T	.0012	.0013	32	.04	.0114	.1369
26	0	0	.3182	30	.01	.0019	.0319	2:00	T	.0009	.0018	33	.04	.0106	.1371
Oct. 8 3				6:00	T	.0009	.0326	30	T	.0006	.0025	34	.04	.0097	.1373
p. m.				30	T	.0006	.0330	40	T	.0003	.0024	35	.03	.0089	.1375
9:48	0	0	0	7:00	T	.0003	.0332	50	T	.0003	.0025	36	.03	.0085	.1376
49	.01	.0027		30	T	T	.0333	3:00	T	T		37	.03	.0084	.1377
50	.01	.0023		8:00	0	0	.0333	4:00	T	T		38	.03	.0075	.1378
51	.01	.0018		Mar. 4 4				30	T	T		39	.02	.0065	.1379
52	T	.0012		p. m.				4:00	0	0	.0025	40	.02	.0060	.1380
53	T	.0008		1:58	0	0	0	May 17 5				45	.02	.0043	.1384
54	T	.0002		59	T	.0005		2:12	a. m.			50	.01	.0028	.1387
55	T	.0001		2:00	T	.0006		13	0	0	0	55	.01	.0021	.1389
56	T	.0001		15	T	.0009	.0002	14	.07	.0183	.0002	4:00	.01	.0017	.1391
10:00	0	0	.0001	30	T	.0012	.0004	15	.09	.0229	.0005	05	T	.0013	.1392
1940				45	.01	.0016	.0008	16	.13	.0347	.0010	10	T	.0006	.1393
Feb. 15 4				3:00	.01	.0018	.0012	17	.17	.0440	.0017	15	T	.0005	
p. m.				15	.01	.0019	.0016	18	.22	.0594	.0026	20	T	.0004	
2:50	0	0	0	30	.01	.0019	.0021	19	.33	.0875	.0038	25	T	.0003	
55	T	T		40	.01	.0018	.0030	20	.38	.101	.0054	30	T	.0007	
3:00	T	T		30	.01	.0016	.0038	21	.39	.103	.0071	35	T	.0006	
4:00	T	.0006	.0002	5:00	T	.0012	.0045	22	.45	.118	.0089	40	T	.0006	
5:00	T	.0006	.0005	6:00	T	.0006	.0054	23	.54	.142	.0111	45	T	.0007	
5:00	T	.0006	.0008	7:00	T	T	.0057	24	.58	.153	.0136	50	.01	.0015	.1394
26	0	0	.0010	8:00	0	0		25	.59	.157	.0162	55	.01	.0016	.1395
Feb. 28 4				Mar. 5 4				26	.60	.160	.0188	60	.01	.0016	.1396
p. m.				p. m.				27	.60	.160	.0215	65	.01	.0015	.1397
1:02	0	0	0	12:10	0	0	0	28	.60	.158	.0241	70	T	.0010	.1398
05	T	.0006		15	T	T		29	.62	.164	.0267	75	T	.0007	.1399
15	T	.0006	.0001	30	T	.0006	.0001	30	.62	.165	.0321	80	0	.0002	
30	T	.0009	.0003	1:00	T	.0009	.0005	31	.62	.164	.0348	85	0		
45	T	.0012	.0005	15	.01	.0016	.0008	32	.62	.165	.0375	90	0		
				20	.01	.0019	.0010	33	.63	.166	.0403	95	0		
				30	.01	.0019	.0013	34	.66	.175	.0431	100	0		
				2:00	.01	.0019	.0023	35	.70	.187	.0461	105	0		
				30	.01	.0019	.0033	36	.74	.196	.0493	110	0		
								37	.79	.210	.0527	115	0		

See footnotes at end of table.



TABLE 45.—Run-off from watershed 18-H, July 17, 1939, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1940				1940				1940				1940			
June 8				June 8				June 8				Sept. 24			
p. m.	Second-feet	Inches per hour	Inches	p. m.	Second-feet	Inches per hour	Inches	p. m.	Second-feet	Inches per hour	Inches	a. m.	Second-feet	Inches per hour	Inches
8:19-----	0.09	0.0246	0.0009	9:10-----	0.21	0.0551	0.1066	10:01-----	0.01	0.0014		2:37-----	0.42	0.110	0.0069
:20-----	.09	.0234	.0013	:11-----	.20	.0517	.1075	:02-----	T	.0013		:38-----	.45	.120	.0088
:21-----	.11	.0279	.0017	:12-----	.19	.0498	.1083	:03-----	T	.0011		:39-----	.47	.125	.0108
:22-----	.15	.0397	.0023	:13-----	.17	.0453	.1091	:04-----	T	.0010		:40-----	.47	.125	.0129
:23-----	.18	.0480	.0030	:14-----	.16	.0422	.1098	:05-----	T	.0009		:41-----	.46	.123	.0150
:24-----	.21	.0559	.0039	:15-----	.15	.0392	.1105	:06-----	T	.0009		:42-----	.46	.123	.0170
:25-----	.25	.0660	.0049	:16-----	.14	.0363	.1111	:07-----	T	.0009		:43-----	.48	.129	.0191
:26-----	.29	.0774	.0061	:17-----	.13	.0346	.1117	:08-----	T	.0008		:44-----	.55	.146	.0214
:27-----	.37	.0970	.0076	:18-----	.12	.0328	.1123	:09-----	T	.0008		:45-----	.60	.158	.0239
:28-----	.46	.123	.0094	:19-----	.11	.0301	.1128	:10-----	T	.0006		:46-----	.65	.171	.0266
:29-----	.53	.139	.0116	:20-----	.11	.0295	.1133	:11-----	T	.0004		:47-----	.68	.181	.0295
:30-----	.58	.153	.0140	:21-----	.11	.0284	.1138	:12-----	T	.0002		:48-----	.69	.183	.0325
:31-----	.63	.166	.0167	:22-----	.10	.0268	.1143	:13-----	T	.0001		:49-----	.70	.184	.0357
:32-----	.67	.178	.0196	:23-----	.09	.0238	.1147	:14-----	T	.0001		:50-----	.70	.184	.0387
:33-----	.71	.188	.0227	:24-----	.09	.0229	.1151	:15-----	0	0	0.1209	:51-----	.68	.180	.0417
:34-----	.70	.184	.0258	:25-----	.08	.0222	.1155	Aug. 4 <sup>7</sup>				:52-----	.66	.180	.0447
:35-----	.70	.184	.0289	:26-----	.08	.0211	.1159	p. m.				:53-----	.68	.174	.0476
:36-----	.68	.180	.0319	:27-----	.08	.0201	.1162	8:47-----	0	0	0	:54-----	.64	.171	.0505
:37-----	.68	.180	.0349	:28-----	.07	.0190	.1165	:48-----	.11	.0293	.0002	:55-----	.63	.166	.0533
:38-----	.67	.178	.0379	:29-----	.07	.0179	.1168	:49-----	.10	.0263	.0007	:56-----	.60	.160	.0560
:39-----	.70	.185	.0409	:30-----	.06	.0168	.1171	:50-----	.09	.0239	.0011	:57-----	.59	.156	.0586
:40-----	.72	.190	.0440	:31-----	.06	.0153	.1174	:51-----	.09	.0249	.0015	:58-----	.56	.148	.0611
:41-----	.74	.198	.0472	:32-----	.05	.0141	.1176	:52-----	.10	.0277	.0019	:59-----	.54	.143	.0635
:42-----	.75	.199	.0505	:33-----	.05	.0129	.1178	:53-----	.09	.0266	.0023	3:00-----	.52	.138	.0658
:43-----	.75	.199	.0538	:34-----	.05	.0125	.1180	:54-----	.07	.0197	.0027	:01-----	.51	.136	.0681
:44-----	.75	.199	.0571	:35-----	.05	.0123	.1182	:55-----	.07	.0177	.0030	:02-----	.48	.128	.0703
:45-----	.72	.191	.0603	:36-----	.04	.0116	.1184	:56-----	.06	.0157	.0033	:03-----	.47	.124	.0724
:46-----	.71	.188	.0635	:37-----	.04	.0105	.1186	:57-----	.05	.0139	.0035	:04-----	.46	.121	.0744
:47-----	.70	.184	.0666	:38-----	.04	.0103	.1188	:58-----	.05	.0120	.0037	:05-----	.43	.114	.0764
:48-----	.68	.179	.0696	:39-----	.04	.0098	.1190	:59-----	.04	.0108	.0039	:06-----	.42	.110	.0783
:49-----	.64	.169	.0725	:40-----	.03	.0092	.1192	:00-----	.04	.0094	.0041	:07-----	.41	.109	.0801
:50-----	.60	.158	.0752	:41-----	.03	.0085	.1193	:01-----	.03	.0070	.0042	:08-----	.41	.108	.0819
:51-----	.56	.150	.0778	:42-----	.03	.0079	.1194	:02-----	.03	.0068	.0043	:09-----	.41	.108	.0837
:52-----	.54	.144	.0802	:43-----	.03	.0072	.1195	:03-----	.02	.0053	.0044	:10-----	.40	.106	.0855
:53-----	.50	.134	.0825	:44-----	.02	.0066	.1196	:04-----	.02	.0046	.0045	:11-----	.40	.106	.0873
:54-----	.48	.127	.0847	:45-----	.02	.0062	.1197	:05-----	.01	.0032	.0046	:12-----	.38	.102	.0890
:55-----	.46	.121	.0868	:46-----	.02	.0059	.1198	:06-----	T	.0009	.0048	:13-----	.37	.0991	.0907
:56-----	.42	.111	.0887	:47-----	.02	.0054	.1199	:07-----	T			:14-----	.36	.0965	.0923
:57-----	.40	.105	.0905	:48-----	.02	.0050	.1200	:08-----	0	0	.0048	:15-----	.36	.0941	.0939
:58-----	.38	.100	.0922	:49-----	.02	.0047	.1201	:09-----	0	0		:20-----	.28	.0748	.1009
:59-----	.34	.0912	.0938	:50-----	.02	.0043	.1202	:10-----				:25-----	.24	.0631	.1067
9:00-----	.32	.0840	.0953	:51-----	.01	.0039	.1203	:11-----				:30-----	.20	.0520	.1115
:01-----	.30	.0787	.0967	:52-----	.01	.0036	.1204	:12-----				:35-----	.15	.0387	.1153
:02-----	.28	.0753	.0980	:53-----	.01	.0033	.1205	:13-----				:40-----	.12	.0310	.1182
:03-----	.27	.0710	.0992	:54-----	.01	.0030	.1206	:14-----				:45-----	.10	.0261	.1206
:04-----	.26	.0684	.1004	:55-----	.01	.0028		:15-----	.07	.0187	.0002	:50-----	.08	.0214	.1225
:05-----	.26	.0679	.1015	:56-----	.01	.0025		:31-----	.07	.0174	.0005	:55-----	.06	.0149	.1240
:06-----	.25	.0657	.1026	:57-----	.01	.0022		:32-----	.11	.0299	.0009	:56-----	.04	.0096	.1250
:07-----	.23	.0620	.1037	:58-----	.01	.0019		:33-----	.18	.0480	.0016	:4:00-----	.02	.0058	.1256
:08-----	.22	.0581	.1047	:59-----	.01	.0017		:34-----	.25	.0673	.0026	:05-----	.01	.0029	.1260
:09-----	.22	.0581	.1057	10:00-----	.01	.0015		:35-----	.30	.0785	.0038	:10-----	T	.0012	.1262
								:36-----	.35	.0932	.0052	:15-----	0	0	.1262

<sup>1</sup> Total rainfall for storm of Aug. 1, 0.22 inch. Soil dry and hard. Grass short and withered, 1 inch high.

<sup>2</sup> Total rainfall for storm of Aug. 11, 0.65 inch. Soil dry and hard. Grass short and withered, 1 inch high.

<sup>3</sup> Total rainfall for storm of Oct. 8, 0.18 inch. Soil dry and hard. Grass short and withered, 1 inch high.

<sup>4</sup> Run-off from melting snow.

<sup>5</sup> Total rainfall for storm of May 17, 1.41 inches. Soil moist before rain. Grass 1 inch high.

<sup>6</sup> Total rainfall for storm of June 8, 1.10 inches. Soil dry before rain. Grass 1 inch high.

<sup>7</sup> Total rainfall for storm of Aug. 4, 0.45 inch. Soil moist from rain of previous day. Grass 1 inch high.

<sup>8</sup> Total rainfall for storm of Sept. 24, 0.82 inch. Soil wet from rain of previous day. Grass 1 inch high.



TABLE 46.—Run-off from pasture plot 51-H, August 23, 1939, to December 31, 1940

LOCATION: Latitude 40°16'01'', longitude 98°22'37''.

## PHYSICAL CHARACTERISTICS:

*Drainage area.*—0.69 acre, rectangular plot 100 by 300 feet.*Length of principal watercourse.*—310 feet.*Topography.*—Undulating, well drained.*Slope.*—Average slope is 8.0 percent; 17 percent of the watershed has a slope of 2 to 5 percent; 39 percent, 5 to 8 percent; 38 percent, 8 to 12 percent; and 6 percent has a slope of 12 percent or more.*Erosion condition.*—No depressions or gullies. Less than 25 percent of the topsoil has been lost from the plot.*Soil.*—Holdrege silt loam, 75 percent; Hastings silt loam, 20 percent; Nuckolls silt loam, 5 percent. The Hastings silt loam and Nuckolls silt loam are on the upper end of the plot.

## LAND USE AND VEGETAL COVER:

*Land use distribution.*—Native pasture, 100 percent. The plot is plain and unfenced. It was grazed almost continuously.*Vegetal cover and soil condition.*—The ecological survey made

in October 1939 showed a basal vegetal cover of 27 percent, of which 16 percent was buffalo grass and 11 percent grama. The grass was never more than 1 inch high and suffered from lack of moisture throughout both years.

## MEASUREMENTS:

*Precipitation.*—Rainfall was measured at recording rain gage B28R before August 29, 1939, and B32R thereafter (fig. 2).

Snowfall was measured by weighing and recording rain and snow gages and by cooperative observers' measurements. Snow inventory on the watershed was obtained by inspection.

*Run-off.*—Run-off was measured by an H flume 2 feet deep.*Change in instrumentation during period.*—B32R installed August 29, 1939.

## SUMMARY OF RECORDS:

*Run-off.*—Annual run-off amount 1940, 0.841 inch. Maximum rate of run-off 1939, 0.0003 inch per hour, October 8; maximum rate 1940, 0.733 inch per hour, June 8.

Date and time	Instantaneous rate of run-off			Accumulated run-off	Date and time	Instantaneous rate of run-off			Accumulated run-off	Date and time	Instantaneous rate of run-off			Accumulated run-off	Date and time	Instantaneous rate of run-off			Accumulated run-off					
1939					1940					1940					1940					1940				
Oct. 8 <sup>1</sup>					Feb. 15					Feb. 29					May 17									
<i>p. m.</i>	<i>Second-foot</i>	<i>Inches per hour</i>	<i>Inches</i>		<i>p. m.</i>	<i>Second-foot</i>	<i>Inches per hour</i>	<i>Inches</i>		<i>p. m.</i>	<i>Second-foot</i>	<i>Inches per hour</i>	<i>Inches</i>		<i>a. m.</i>	<i>Second-foot</i>	<i>Inches per hour</i>	<i>Inches</i>						
9:51-----	0	0	0		5:00-----	0.01	0.0121	0.0136		2:00-----	0.01	0.0112	0.0241		2:46-----	0.11	0.158	0.1821						
:52-----	T	.0003			:15-----	.01	.0109	.0165		:15-----	.01	.0098	.0267		:47-----	.10	.147	.1846						
:55-----	T	.0003			:30-----	.01	.0095	.0191		:30-----	.01	.0089	.0290		:48-----	.09	.134	.1869						
:56-----	T	.0003			:45-----	.01	.0085	.0206		:45-----	.01	.0079	.0311		:49-----	.08	.117	.1890						
:57-----	T	.0002			6:00-----	T	.0072	.0226		3:00-----	T	.0072	.0330		:50-----	.07	.101	.1908						
:58-----	T	.0002			:30-----	T	.0045	.0255		:30-----	T	.0053	.0361		:51-----	.06	.0910	.1924						
:59-----	T	.0001			7:00-----	T	.0020	.0271		4:00-----	T	.0037	.0383		:52-----	.06	.0815	.1938						
10:00-----	0	0	T		:30-----	T		.0276		:30-----	T	.0020	.0397		:53-----	.05	.0726	.1951						
1940					8:00-----	0	0	.0276		5:00-----	T	.0006	.0403		:54-----	.04	.0604	.1962						
Feb. 14 <sup>2</sup>					Feb. 27 <sup>2</sup>					Mar. 15 <sup>2</sup>					May 17 <sup>3</sup>									
<i>p. m.</i>					<i>p. m.</i>					<i>p. m.</i>					<i>a. m.</i>									
7:49-----	0	0	0		1:51-----	0	0	0		1:25-----	0	0	0		2:14-----	0	0	0						
:50-----	T	T			:52-----	T	T			:30-----	T	.0004			:15-----	.01	.0187	.0002						
:51-----	T	.0020			2:00-----	T	T			:05-----	T	.0004			:16-----	.02	.0358	.0007						
:52-----	T	.0045	.0001		:05-----	T	.0004			:10-----	T	.0016	.0001		:17-----	.04	.0564	.0015						
:53-----	T	.0072	.0002		:10-----	T	.0016	.0001		:15-----	T	.0024	.0003		:18-----	.05	.0726	.0026						
:54-----	.01	.0089	.0003		:15-----	T	.0024	.0003		:25-----	T	.0004	.0004		:19-----	.07	.101	.0041						
:55-----	.01	.0105	.0005		:30-----	T	.0066	.0014		:35-----	T	T			:20-----	.08	.129	.0063						
:56-----	.01	.0124	.0007		:45-----	.01	.0098	.0034		4:00-----	0	0	.0004		:21-----	.16	.230	.0095						
:57-----	.01	.0144	.0009		3:00-----	.01	.0112	.0060		:45-----	0	0			:22-----	.22	.318	.0141						
:58-----	.01	.0165	.0012		:15-----	.01	.0132	.0090		5:00-----	.01	.0124	.0263		:23-----	.25	.357	.0197						
:59-----	.01	.0187	.0015		:30-----	.01	.0144	.0124		:30-----	T	.0058	.0353		:24-----	.31	.443	.0264						
8:00-----	.01	.0207	.0018		:45-----	.01	.0132	.0090		:31-----	.01	.0156	.0156		:25-----	.36	.513	.0344						
:01-----	.02	.0223	.0022		4:00-----	.01	.0144	.0196		:32-----	.38	.539	.1057		:26-----	.41	.591	.0436						
:02-----	.02	.0239	.0026		:30-----	.01	.0124	.0263		:33-----	.35	.500	.1144		:27-----	.45	.646	.0539						
:03-----	.02	.0256	.0030		5:00-----	.01	.0089	.0316		:34-----	.32	.466	.1224		:28-----	.46	.660	.0648						
:04-----	.02	.0272	.0034		:30-----	T	.0058	.0353		:35-----	.30	.431	.1299		:29-----	.45	.646	.0757						
:05-----	.02	.0283	.0039		:45-----	T	.0045	.0366		:36-----	.28	.398	.1368		:30-----	.43	.618	.0862						
:06-----	.02	.0295	.0044		6:00-----	T	.0032	.0376		:37-----	.26	.377	.1433		:31-----	.41	.591	.0963						
:07-----	.02	.0308	.0049		:30-----	T	.0010	.0386		:38-----	.24	.347	.1493		:32-----	.38	.539	.1057						
:08-----	.02	.0321	.0054		7:00-----	0	0	.0388		:39-----	.22	.318	.1548		:33-----	.35	.500	.1144						
:09-----	.02	.0326	.0059		Feb. 29 <sup>2</sup>						:40-----	.20	.290	.1599		:34-----	.32	.466	.1224					
:10-----	.02	.0332	.0064		<i>a. m.</i>					:41-----	.18	.263	.1645		:35-----	.30	.431	.1299						
:11-----	.02	.0358	.0093		11:55-----	0	0	0		:42-----	.17	.239	.1687		:36-----	.28	.398	.1368						
:12-----	.03	.0377	.0124		:56-----	T	.0016			:43-----	.15	.216	.1725		:37-----	.26	.377	.1433						
:13-----	.03	.0390	.0156		:57-----	T	.0019			:44-----	.14	.200	.1760		:38-----	.24	.347	.1493						
:14-----	.03	.0395	.0189		:58-----	T	.0020			:45-----	.13	.186	.1792		:39-----	.22	.318	.1548						
:15-----	.03	.0403	.0289		12:00-----	T	.0021	.0001							:40-----	.20	.290	.1599						
9:00-----	.03	.0408	.0391		<i>p. m.</i>										:41-----	.18	.263	.1645						
:15-----	.02	.0358	.0487		12:05-----	T	.0037	.0003		:42-----	.17	.239	.1687		:42-----	.15	.216	.1725						
:30-----	.02	.0239	.0561		:10-----	T	.0050	.0007		:43-----	.15	.216	.1725		:43-----	.14	.200	.1760						
:45-----	.01	.0144	.0609		:15-----	T	.0058	.0011		:44-----	.14	.200	.1760		:44-----	.13	.186	.1792						
10:00-----	T	.0072	.0636		:20-----	T	.0066	.0016							:45-----	.13	.186	.1792						
:15-----	T	.0020	.0648		:25-----	.01	.0076	.0022																
:30-----	0	0	.0650		:30-----	.01	.0089	.0029																
Feb. 15 <sup>2</sup>					:35-----	.01	.0105	.0037																
<i>p. m.</i>					:40-----	.01	.0121	.0046																
3:30-----	0	0	0		:45-----	.01	.0137	.0057																
:31-----	T	.0045			:50-----	.01	.0144	.0069																
:35-----	T	.0050	.0003		:55-----	.01	.0143	.0081																
:45-----	T	.0066	.0013		1:00-----	.01	.0157	.0094																
4:00-----	T	.0072	.0030		:15-----	.01	.0165	.0134																
:30-----	.01	.0112	.0076		:30-----	.01	.0152	.0174																
:45-----	.01	.0124	.0106		:45-----	.01	.0137	.0210																



TABLE 46.—Run-off from pasture plot 51-H, August 23, 1939, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1940				1940				1940				1940			
May 17				June 8				Sept. 23 <sup>5</sup>				Sept. 24			
a. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches
5:55	T	0	.2639	8:46	0.23	0.336	0.1972	3:13	0	0	0	3:10	0.08	0.111	0.0993
5:58	0	0	.2639	:47	.21	.308	.2026	:15	T	T	T	:13	.09	.122	.1051
June 8 <sup>4</sup>				:48	.20	.280	.2075	:20	T	T	T	:15	.09	.122	.1092
p. m.				:49	.18	.256	.2120	:30	T	.0010	.0001	:17	.09	.122	.1133
8:20	0	0	0	:50	.16	.230	.2160	:40	T	.0020	.0003	:20	.08	.111	.1191
:21	.01	.0105	.0001	:51	.15	.216	.2197	:43	T	.0045	.0005	:25	.06	.0910	.1275
:22	.02	.0358	.0005	:52	.13	.193	.2231	:45	T	.0045	.0007	:30	.05	.0684	.1341
:23	.06	.0815	.0015	:53	.12	.173	.2261	:50	T	.0032	.0010	:35	.03	.0490	.1390
:24	.13	.185	.0037	:54	.10	.147	.2288	:55	T	.0020	.0012	:40	.03	.0390	.1427
:25	.21	.299	.0077	:55	.09	.128	.2311	4:00	T	T	.0013	:50	.02	.0267	.1482
:26	.26	.376	.0133	:56	.08	.111	.2331	:05	T	T		4:00	.01	.0166	.1518
:27	.29	.420	.0199	:57	.07	.101	.2349	:10	0	0	.0013	:10	.01	.0089	.1539
:28	.32	.466	.0273	:58	.06	.0862	.2365	Sept. 24 <sup>6</sup>				:15	T	.0045	.1545
:29	.39	.565	.0359	:59	.05	.0726	.2378	a. m.				:20	T	.0020	.1548
:30	.45	.645	.0460	9:00	.04	.0643	.2389	2:34	0	0	0	:25	T	T	.1549
:31	.49	.703	.0572	:01	.04	.0564	.2399	:35	.05	.0726	.0006	:30	T	T	
:32	.51	.733	.0692	:02	.03	.0490	.2408	:36	.07	.101	.0020	Nov. 25 <sup>7</sup>			
:33	.50	.719	.0813	:03	.03	.0421	.2416	:37	.09	.122	.0039	p. m.			
:34	.47	.674	.0929	:04	.02	.0358	.2422	:38	.11	.158	.0062	4:15	0	0	0
:35	.45	.645	.1039	:05	.02	.0295	.2427	:39	.13	.185	.0091	:30	T	T	
:36	.43	.618	.1144	:06	.02	.0267	.2432	:40	.15	.216	.0124	5:00	T	T	
:37	.42	.604	.1246	:07	.01	.0213	.2436	:41	.16	.230	.0161	:30	T	.0010	.0005
:38	.40	.578	.1344	:08	.01	.0187	.2439	:42	.17	.248	.0201	6:00	T	.0020	.0020
:39	.38	.552	.1438	:09	.01	.0166	.2442	:43	.17	.248	.0201	7:00	T	.0010	.0028
:40	.37	.526	.1528	:10	.01	.0124	.2444	:44	.18	.256	.0227	:30	T	.0010	.0030
:41	.35	.501	.1614	:15	T	.0058	.2452	:45	.17	.248	.0211	8:00	T	T	.0030
:42	.33	.478	.1696	:20	T	.0010	.2455	:47	.14	.208	.0525	:05	0	0	
:43	.32	.454	.1774	:25	T	T		:55	.11	.158	.0677				
:44	.29	.420	.1847	:30	T	T		3:00	.09	.134	.0799				
:45	.26	.377	.1913	10:00	0	0	.2455	:05	.08	.111	.0901				

<sup>1</sup> Total rainfall for storm of Oct. 8, 0.22 inch. Soil dry and hard before rain. Heavily grazed, unfurrowed. Grass withered, 1 inch high.

<sup>2</sup> Run-off from melting snow.

<sup>3</sup> Total rainfall for storm of May 17, 1.43 inches. Soil moist before rain.

<sup>4</sup> Total rainfall for storm of June 8, 1.09 inches. Soil dry before rain.

<sup>5</sup> Total rainfall for storm of Sept. 23, 0.71 inch. Soil dry before rain.

<sup>6</sup> Total rainfall for storm of Sept. 24, 0.67 inch. Soil wet from rains of previous days.

<sup>7</sup> Total rainfall for storm of Nov. 25-26, 0.52 inch. Soil moist before rain.



TABLE 47.—Run-off from pasture plot 52-H, August 23, 1939, to December 31, 1940

LOCATION: Latitude 40°16'02'', longitude 98°22'37''.

## PHYSICAL CHARACTERISTICS:

*Drainage area.*—0.69 acre, rectangular plot 100 by 300 feet.*Length of principal watercourse.*—308 feet.*Topography.*—Undulating, well drained.*Slope.*—Average slope is 8.1 percent. 59 percent of the watershed has a slope of 5 to 8 percent; 38 percent, 8 to 12 percent, and 3 percent has a slope of 12 percent or more.*Erosion condition.*—The area has lost less than 25 percent of the topsoil.*Soil.*—Holdrege silt loam, 70 percent; Hastings silt loam, 30 percent. The Hastings silt loam is at the upper end of the plot.

## LAND USE AND VEGETAL COVER:

*Land use distribution.*—Native pasture, 100 percent. The plot is contour furrowed and unfenced. The furrows are 5 inches deep and 12 inches wide. The sod from the furrows was placed below the furrow to form a ridge. There are 24 furrows spaced 1 foot apart vertically. The plot was grazed almost continuously.*Vegetal cover and soil condition.*—The ecological survey made in October 1939 showed a basal vegetal cover of 25 percent, of which 15 percent was buffalo grass and 10 percent blue grama. The grass was never more than 1 inch high and suffered from lack of moisture throughout both years.

## MEASUREMENTS:

*Precipitation.*—Rainfall was measured at recording rain gage B28R before August 29, 1939, and B32R thereafter (fig. 2). Snowfall was measured by weighing and recording rain and snow gages by cooperative observers' measurements. Snow inventory on the watershed was obtained by inspection.*Run-off.*—Run-off was measured by an H flume 2 feet deep.*Changes in instrumentation during period.*—B32R installed August 29, 1939.

## SUMMARY OF RECORDS:

*Run-off.*—Annual run-off amount 1940, 0.035 inch. Maximum rate of run-off 1939, 0.001 inch per hour, October 8; maximum rate 1940, 0.036 inch per hour, June 8.

Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off
1939			1940			1940			1940		
Oct. 8 <sup>1</sup>			Feb. 29 <sup>2</sup>			May 17			Sept. 23 <sup>3</sup>		
<i>p. m.</i>	<i>Second-foot</i>	<i>Inches per hour</i>	<i>p. m.</i>	<i>Second-foot</i>	<i>Inches per hour</i>	<i>a. m.</i>	<i>Second-foot</i>	<i>Inches per hour</i>	<i>a. m.</i>	<i>Second-foot</i>	<i>Inches per hour</i>
9:47-----	0	0	12:08-----	0	0	5:45-----	0	0	3:05-----	0	0
:48-----	T	.0007	:10-----	T	T	6:00-----	0	0	:10-----	T	T
:50-----	T	.0004	:20-----	T	.0010				:15-----	T	.0010
:52-----	T	.0002	:30-----	T	.0010				:30-----	T	T
:55-----	T	.0001	1:00-----	T	.0010				4:00-----	T	T
10:00-----	0	0	2:00-----	T	.0010				:05-----	0	0
			:10-----	T	.0019						
			:20-----	0	0						
1940			May 17 <sup>3</sup>			June 8 <sup>4</sup>			Sept. 24 <sup>7</sup>		
Feb. 15 <sup>2</sup>			<i>a. m.</i>			<i>p. m.</i>			<i>a. m.</i>		
<i>p. m.</i>	<i>Second-foot</i>	<i>Inches per hour</i>	<i>a. m.</i>	<i>Second-foot</i>	<i>Inches per hour</i>	<i>a. m.</i>	<i>Second-foot</i>	<i>Inches per hour</i>	<i>a. m.</i>	<i>Second-foot</i>	<i>Inches per hour</i>
1:54-----	0	0	2:14-----	0	0	8:17-----	0	0	2:21-----	0	0
:55-----	T	T	:15-----	.01	.0105	:18-----	T	.0045	:25-----	T	T
2:00-----	T	.0004	:19-----	.01	.0105	:20-----	T	.0045	:28-----	T	T
3:00-----	T	.0010	:20-----	.01	.0124	:21-----	T	.0072	:29-----	T	.0020
4:00-----	T	.0004	:21-----	.01	.0187	:22-----	.01	.0144	:30-----	T	.0072
:30-----	T	T	:22-----	.02	.0239	:23-----	.02	.0239	:32-----	.01	.0144
:55-----	0	0	:23-----	.02	.0295	:24-----	.02	.0326	:35-----	.01	.0124
			:25-----	.02	.0239	:25-----	.02	.0358	:40-----	T	.0072
Feb. 26 <sup>2</sup>			:26-----	.01	.0213	:26-----	.02	.0358	:45-----	T	.0045
<i>p. m.</i>	<i>Second-foot</i>	<i>Inches per hour</i>	:27-----	.01	.0187	:28-----	T	.0072	:50-----	T	.0020
12:45-----	0	0	:28-----	.01	.0166	:36-----	T	.0058	:00-----	T	.0020
:50-----	T	.0004	:29-----	.01	.0144	:37-----	T	.0058	:05-----	T	.0031
1:00-----	T	.0010	:30-----	.01	.0124	:38-----	T	.0072	:10-----	T	.0020
2:00-----	T	T	:31-----	.01	.0105	:40-----	.01	.0105	:15-----	T	.0045
3:00-----	T	T	:32-----	.01	.0088	:43-----	.01	.0105	:20-----	T	.0032
4:00-----	0	0	:33-----	T	.0072	:46-----	T	.0045	:25-----	T	.0010
			:34-----	T	.0058	:48-----	T	.0020	:30-----	T	T
Feb. 27 <sup>2</sup>			:35-----	T	.0045	:50-----	T	T	4:00-----	T	T
<i>a. m.</i>	<i>Second-foot</i>	<i>Inches per hour</i>	:40-----	T	.0020	9:00-----	T	T	:10-----	T	T
11:51-----	0	0	:45-----	T	.0056	:10-----	0	0	:20-----	0	0
:55-----	T	.0010	:50-----	T	T						
12:00-----	T	.0010	3:50-----	T	.0020	Aug. 4 <sup>5</sup>			Nov. 25 <sup>8</sup>		
			4:00-----	T	.0032	<i>p. m.</i>			<i>p. m.</i>		
			:02-----	T	.0032	8:49-----	0	0	7:02-----	0	0
			:05-----	T	.0032	:50-----	.01	.0088	:03-----	T	T
			:10-----	T	.0010	:51-----	.01	.0105	:10-----	T	T
			:15-----	T	.0010	:53-----	.01	.0105	:15-----	T	.0010
			:30-----	T	.0010	:55-----	T	.0072	:30-----	T	.0032
			:45-----	T	.0010	9:00-----	T	.0032	:45-----	T	.0032
			:50-----	T	.0020	:05-----	T	.0010	:00-----	T	.0010
			5:00-----	T	.0010	:10-----	T	.0004	:05-----	T	T
			:05-----	T	.0020	:15-----	T	T	:10-----	0	0
			:10-----	T	.0010	:30-----	T	T			
			:15-----	T	T	:35-----	0	0			

<sup>1</sup> Total rainfall for storm of Oct. 8, 0.22 inch. Soil dry and hard before rain. Heavily grazed, furrowed. Grass withered, 1 inch high.<sup>2</sup> Run-off from melting snow.<sup>3</sup> Total rainfall for storm of May 17, 1.43 inches. Soil moist before rain.<sup>4</sup> Total rainfall for storm of June 8, 1.09 inches. Soil dry before rain.<sup>5</sup> Total rainfall for storm of Aug. 4, 0.38 inch. Soil moist before rain.<sup>6</sup> Total rainfall for storm of Sept. 22-23, 0.71 inch. Soil dry before rain.<sup>7</sup> Total rainfall for storm of Sept. 24, 0.67 inch. Soil wet from rain of previous days.<sup>8</sup> Total rainfall for storm of Nov. 25-26, 0.52 inch. Soil moist before rain.



TABLE 48.—Run off from pasture plot 53-H, August 23, 1939, to December 31, 1940

LOCATION: Latitude 40°16'04", longitude 98°22'37".

## PHYSICAL CHARACTERISTICS:

*Drainage area.*—0.69 acre rectangular plot 100 by 300 feet.*Length of principal watercourse.*—308 feet.*Topography.*—Undulating, well drained.*Slope.*—Average slope is 8.1 percent. 8 percent of the watershed has a slope of 2 to 5 percent; 36 percent, 5 to 8 percent; and 56 percent, 8 to 12 percent.*Erosion condition.*—The plot has lost less than 25 percent of the topsoil.*Soils.*—Holdrege silt loam, 60 percent; Hastings silt loam, 40 percent. The Hastings silt loam is at the upper end of the area.

## LAND USE AND VEGETAL COVER:

*Land use distribution.*—Native pasture, 100 percent. The plot is contour furrowed and fenced to control grazing. Furrows are 5 inches deep and 12 inches wide, spaced 1 foot apart vertically. The sod from the furrow was placed below the furrow to form a ridge. There are 24 furrows. No grazing was allowed after July 1, 1939.*Vegetal cover and soil condition.*—The ecological survey made

in October 1939 showed a basal vegetal cover of 22 percent of which 11 percent was buffalo grass and 11 percent blue grama. In the late part of the season of 1940 the grass near the furrows reached a height of 5 inches but was thin. The plot suffered from lack of moisture throughout both years.

## MEASUREMENTS:

*Precipitation.*—Rainfall was measured at recording rain gage B28R before August 29, 1939, and at B32R thereafter (fig. 2). Snowfall was measured by weighing and recording rain and snow gages and by cooperative observers' measurements. Snow inventory on the watershed was obtained by inspection.*Run-off.*—Run-off was measured by an H flume 2 feet deep.*Changes in instrumentation during period.*—B32R installed August 29, 1939.

## SUMMARY OF RECORDS:

*Run-off.*—Annual run-off amount 1940, 0.123 inch. Maximum rate of run-off 1939, 0.002 inch per hour, October 8; maximum rate 1940, 0.019 inch per hour, May 17.

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1939				1940				1940				1940			
Oct. 8 <sup>1</sup>				Feb. 15				Feb. 29				May 17			
<i>p. m.</i>	<i>Second-foot</i>	<i>Inches per hour</i>	<i>Inches</i>	<i>p. m.</i>	<i>Second-foot</i>	<i>Inches per hour</i>	<i>Inches</i>	<i>a. m.</i>	<i>Second-foot</i>	<i>Inches per hour</i>	<i>Inches</i>	<i>a. m.</i>	<i>Second-foot</i>	<i>Inches per hour</i>	<i>Inches</i>
9:46	0	0	0	7:00	T	0	0.0220	11:45	T	0.0053	0.0020	3:55	T	0.0020	0.0043
:47	T	.0004		8:00	0	0	.0220	12:00	T	.0050	.0033	4:00	T	0.0020	.0045
:48	.01	.0022						<i>p. m.</i>				:05	T	T	.0046
:49	.01	.0019		Feb. 25 <sup>2</sup>				12:30	T	.0045	.0057	:10	T	T	.0047
:50	.01	.0010		<i>p. m.</i>				1:00	T	.0045	.0079	:20	T	.0010	.0048
:51	T	.0004		3:04	0	0	0	2:00	T	.0032	.0117	:30	T	T	.0049
:52	T	.0002		:05	T	.0045	.0008	3:00	T	.0020	.0143	:45	T	.0010	.0050
:53	0	0	T	:15	T	.0045	.0016	4:00	T	T	.0153	:50	T	.0020	.0051
				:30	T	.0020	.0018	5:00	0	0	.0153	:55	T	.0020	.0052
				:45	T	0	.0018	Mar. 4 <sup>2</sup>				5:00	T	.0020	.0054
				4:00	0	0		<i>p. m.</i>				:05	T	.0020	
1940				Feb. 26 <sup>2</sup>				1:19				:06			
Feb. 1 <sup>2</sup>				<i>p. m.</i>				:20				:10			
<i>p. m.</i>				1:41	0	0	0	:25	0	0	0	:15	T	T	.0055
2:44	0	0	0	:42	T	T		:30	T	.0020	.0001	:20	0	0	.0055
:45	T	T		:45	T	.0020		:35	T	.0038	.0003				
:50	T	.0032	.0001	:50	T	.0045	.0003	:40	T	.0045	.0007	Sept. 24 <sup>4</sup>			
:55	T	.0045	.0004	2:00	T	.0045	.0011	:45	T	.0045	.0011	<i>a. m.</i>			
3:00	T	.0072	.0009	3:00	T	.0045	.0056	2:00	T	.0038	.0015	2:31	0	0	0
:05	.01	.0088	.0016	4:00	T	.0045	.0101	3:00	T	.0038	.0025	:32	.01	.0079	.0001
:15	T	.0072	.0029	5:00	T	.0032	.0139	4:00	T	.0032	.0060	:33	.01	.0095	.0002
:30	T	.0045	.0043	6:00	T	.0020	.0165	5:00	T	.0020	.0086	:35	.01	.0088	.0004
:45	T	.0010	.0050	7:00	T	T	.0175	6:00	T	.0006	.0099	:40	T	.0058	.0010
4:00	0	0	.0050	8:00	T	0	.0175	7:00	T	.0006	.0105	:45	T	.0025	.0014
								8:00	0	0	.0108	:50	T	.0010	.0016
Feb. 14 <sup>2</sup>				Feb. 27 <sup>2</sup>				May 17				:55			
<i>p. m.</i>				<i>a. m.</i>				<i>a. m.</i>				3:00	T	.0004	.0017
2:41	0	0	0	11:50	0	0	0	2:09	0	0	0	:10	T	.0004	.0018
:43	T	T		:55	T	.0020	.0001	:10	T	.0072	.0001	:15	T	.0025	.0019
:45	T	T		12:00	T	.0040	.0003	:11	.01	.0105	.0002	:20	T	.0010	.0021
3:00	T	.0020	.0002					:12	.01	.0136	.0004	:25	T	T	
:15	T	.0045	.0010	<i>p. m.</i>				:13	.01	.0144	.0006	4:10	T	T	
:30	T	.0050	.0022	12:10	T	.0058	.0011	:14	.01	.0124	.0008	:13	0	0	.0021
4:00	T	.0045	.0046	:20	T	.0045	.0020	:15	.01	.0088	.0010	Dec. 4 <sup>2</sup>			
5:00	T	.0045	.0091	:30	T	.0045	.0028	:16	.01	.0058	.0012	<i>p. m.</i>			
6:00	T	.0032	.0129	1:00	T	.0045	.0050	:17	T	.0058	.0014	7:30	0	0	0
7:00	T	.0020	.0155	2:00	T	.0053	.0099	:19	T	.0058	.0015	:35	T	T	
8:00	T	T	.0165	3:00	T	.0045	.0197	:20	.01	.0088	.0017	:40	T	T	
9:00	0	0	.0165	4:00	T	.0032	.0235	:21	.01	.0144	.0020	:45	T	T	
				5:00	T	.0020	.0261	:22	.01	.0187	.0023	:50	T	.0010	.0001
Feb. 15 <sup>2</sup>				6:00	T	T	.0271	:23	.01	.0187	.0029	:55	T	.0020	.0003
<i>p. m.</i>				7:00	0	0	.0271	:25	.01	.0144	.0033	:05	T	.0020	.0005
1:45	0	0	0	Feb. 29 <sup>2</sup>				:27	.01	.0124	.0036	:10	T	.0020	.0007
:50	T	.0020	.0001	<i>a. m.</i>				:29	T	.0072	.0037	:15	T	.0016	.0009
:55	T	.0045	.0004	11:13	0	0	0	:30	T	.0058	.0040	:30	T	.0016	.0010
2:00	T	.0072	.0009	:14	T	T		:35	T	.0020	.0041	:45	T	.0010	.0011
3:00	T	.0058	.0074	:15	T	.0004		:39	T	.0014	.0042	9:00	T	T	
5:00	T	.0045	.0178	:20	T	.0032	.0002	:40	T	.0004		:30	0	0	.0011
6:00	T	.0020	.0210	:30	T	.0045	.0008	:45	T	T					

<sup>1</sup> Total rainfall for storm of Oct. 8, 0.22 inch. Soil dry and hard before rain. Controlled grazing. Area furrowed. Grass near the furrows 5 inches high. 2 feet from the furrows, grass is 2 inches high.<sup>2</sup> Run-off from melting snow.<sup>3</sup> Total rainfall for storm of May 17, 1.43 inches. Soil moist before rain.<sup>4</sup> Total rainfall for storm of Sept. 24, 0.67 inch. Soil wet from rains of previous days.



TABLE 49.—Run-off from pasture plot 54-H, June 23, 1939, to December 31, 1940

LOCATION: Latitude 40°16'05'', longitude 98°22'36''.

## PHYSICAL CHARACTERISTICS:

*Drainage area.*—0.69 acre, rectangular plot 100 by 300 feet.*Length of principal watercourse.*—308 feet.*Topography.*—Undulating, well drained.*Slope.*—Average slope is 8.1 percent. 10 percent of the watershed has a slope of 2 to 5 percent; 37 percent, 5 to 8 percent; and 53 percent, 8 to 12 percent.*Erosion condition.*—The plot has no depressions or gullies and has lost less than 25 percent of the topsoil.*Soil.*—Holdrege silt loam, 65 percent; Hastings silt loam, 35 percent. The Hastings silt loam is at the upper end of the plot.

## LAND USE AND VEGETAL COVER:

*Land use distribution.*—Native pasture, 100 percent. The plot is fenced to control grazing. No grazing was allowed after July 1, 1939.*Vegetal cover and soil condition.*—The ecological survey made in October 1939 showed a basal vegetal cover of 25 percent, of which 12 percent was buffalo grass and 13 percent blue grama. Most of the grass did not reach a height of over 1 inch. A few spots were about 4 inches high.

## MEASUREMENTS:

*Precipitation.*—Rainfall was measured at recording rain gage B28R before August 29, 1939, and B32R thereafter (fig. 2).

Snowfall was measured by weighing and recording rain and snow gages and by cooperative observers' measurements.

Snow inventory on the watershed was obtained by inspection.

*Run-off.*—Run-off was measured by an H flume 2 feet deep.*Changes in instrumentation during period.*—B32R installed August 29, 1939.

## SUMMARY OF RECORDS:

*Run-off.*—Annual run-off amount 1940, 0.565 inch. Maximum rate of run-off 1939, 0.123 inch per hour, August 11; maximum rate 1940, 0.583 inch per hour, May 17.

Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off	Date and time	Instantaneous rate of run-off	Accumulated run-off
1939			1939			1939			1940		
July 1 <sup>1</sup>			Aug. 1			Oct. 8			Feb. 14		
a. m.	Second-foot per hour	Inches	p. m.	Second-foot per hour	Inches	p. m.	Second-foot per hour	Inches	p. m.	Second-foot per hour	Inches
4:46-----	0	0	8:21-----	0.01	0.0018	9:39-----	0	0	5:15-----	0.01	0.0095
4:47-----	.06	.0081	8:22-----	.01	.0016	4:47-----	T	.0002	5:30-----	T	.0072
4:48-----	.09	.0134	8:23-----	.01	.0013	4:48-----	.01	.0019	6:00-----	T	.0050
4:49-----	.09	.0134	8:24-----	.01	.0010	4:49-----	.04	.0064	6:30-----	T	.0045
4:50-----	.08	.0111	8:25-----	.01	.0010	4:50-----	.07	.0101	7:00-----	T	.0020
4:51-----	.06	.0091	8:26-----	T	.0007	4:51-----	.08	.0111	7:30-----	T	.0206
4:52-----	.06	.0086	8:27-----	T	.0006	4:52-----	.06	.0081	8:00-----	0	.0206
4:53-----	.08	.0111	8:28-----	T	.0004	4:53-----	.04	.0060			
4:54-----	.09	.0128	8:29-----	T	.0003	4:54-----	.03	.0042	Feb. 27 <sup>2</sup>		
4:55-----	.09	.0134	8:30-----	T	.0002	4:55-----	.02	.0032	p. m.		
4:57-----	.09	.0128	8:31-----	T	.0001	4:56-----	.02	.0029	2:05-----	0	0
4:58-----	.08	.0111	8:32-----	T	.0001	4:58-----	.02	.0030	3:00-----	T	.0020
5:00-----	.07	.0101	8:33-----	0	0	5:00-----	.02	.0029	3:30-----	T	.0020
5:05-----	.06	.0086	Aug. 11 <sup>3</sup>			5:05-----	.01	.0022	4:00-----	T	.0022
5:10-----	.04	.0056	p. m.			5:10-----	.01	.0012	5:00-----	0	.0022
5:12-----	.03	.0049	9:56-----	0	0	5:15-----	.01	.0009			
5:14-----	.02	.0036	9:57-----	.46	.0674	5:20-----	T	.0007	May 17 <sup>4</sup>		
5:15-----	.02	.0029	9:58-----	.67	.0963	5:25-----	T	.0003	a. m.		
5:16-----	.02	.0024	9:59-----	.51	.0733	5:30-----	T	.0002	2:12-----	0	0
5:18-----	.01	.0019	10:00-----	.51	.0733		0	.0002	2:13-----	.04	.0643
5:20-----	.01	.0014	10:01-----	.75	.0894	1940			2:14-----	.06	.0910
5:25-----	T	.0007	10:02-----	.80	.107	Feb. 13 <sup>5</sup>			2:15-----	.07	.0950
5:30-----	T	.0004	10:03-----	.77	.111	p. m.			2:17-----	.06	.0815
5:35-----	T	.0002	10:04-----	.77	.111	4:46-----	0	0	2:19-----	.05	.0725
5:40-----	T	.0002	10:05-----	.83	.119	4:47-----	T	T	2:20-----	.06	.0815
5:50-----	0	0	10:06-----	.86	.123	6:02-----	T	.0020	2:21-----	.07	.101
Aug. 1 <sup>2</sup>			10:07-----	.83	.119		T	.0020	2:22-----	.09	.134
p. m.			10:08-----	.77	.111	10:05-----	.01	.0045	2:23-----	.12	.166
7:51-----	0	0	10:09-----	.70	.0999	10:10-----	.01	.0105	2:24-----	.14	.200
7:52-----	.14	.0200	10:10-----	.65	.0928	10:15-----	.01	.0187	2:25-----	.17	.247
7:53-----	.22	.0318	10:11-----	.58	.0828	10:20-----	.02	.0267	2:26-----	.22	.318
7:54-----	.18	.0263	10:12-----	.51	.0733	10:25-----	.02	.0326	2:27-----	.28	.398
7:55-----	.15	.0216	10:13-----	.45	.0645	10:30-----	.03	.0371	2:28-----	.32	.466
7:56-----	.17	.0247	10:14-----	.39	.0565	10:35-----	.03	.0435	2:29-----	.38	.539
7:57-----	.21	.0299	10:15-----	.34	.0489	10:40-----	.03	.0442	2:30-----	.40	.578
7:58-----	.21	.0299	10:16-----	.31	.0443	10:45-----	.02	.0358	2:31-----	.41	.583
7:59-----	.20	.0280	10:17-----	.28	.0398	10:50-----	.02	.0295	2:32-----	.40	.578
8:00-----	.17	.0247	10:18-----	.23	.0336	10:55-----	.02	.0239	2:33-----	.39	.565
8:01-----	.17	.0238	10:19-----	.21	.0299	11:00-----	.01	.0187	2:34-----	.38	.539
8:02-----	.17	.0247	10:20-----	.18	.0263	11:05-----	.01	.0105	2:35-----	.34	.489
8:03-----	.17	.0247	10:21-----	.10	.0147	11:10-----	T	.0045	2:36-----	.33	.475
8:04-----	.16	.0230	10:22-----	.06	.0086	11:15-----	T	.0045	2:37-----	.30	.438
8:05-----	.15	.0216	10:23-----	.03	.0049	11:20-----	T	.0020	2:38-----	.28	.402
8:06-----	.13	.0191	10:24-----	.01	.0022	11:25-----	0	0	2:39-----	.26	.368
8:07-----	.12	.0169	10:25-----	.01	.0010	11:30-----	0	.0816	2:40-----	.23	.336
8:08-----	.10	.0149	10:26-----	T	.0004	Feb. 14 <sup>6</sup>			2:41-----	.21	.308
8:09-----	.09	.0129	10:27-----	T	.0002	p. m.			2:42-----	.20	.280
8:10-----	.08	.0111	11:00-----	0	0	3:50-----	0	0	2:43-----	.18	.255
8:11-----	.07	.0097	Oct. 8 <sup>4</sup>			3:55-----	0	0	2:44-----	.16	.230
8:12-----	.06	.0083	a. m.			4:00-----	T	.0053	2:45-----	.14	.200
8:13-----	.05	.0071	11:20-----	0	0	4:05-----	T	.0020	2:46-----	.12	.179
8:14-----	.04	.0061	11:21-----	.01	.0010	4:10-----	T	.0020	2:47-----	.11	.168
8:15-----	.03	.0049	11:22-----	.01	.0012	4:15-----	T	.0072	2:48-----	.10	.147
8:16-----	.03	.0042	11:23-----	.01	.0011	4:30-----	.01	.0083	2:49-----	.09	.134
8:17-----	.02	.0036	11:24-----	.01	.0009	4:35-----	.01	.0083	2:50-----	.09	.122
8:18-----	.02	.0029	11:25-----	T	.0003	4:40-----	.01	.0093	2:51-----	.07	.106
8:19-----	.02	.0024	11:30-----	0	0						
8:20-----	.01	.0022	11:35-----	0	0						

See footnotes at end of table.



TABLE 49.—Run-off from pasture plot 54-H, June 23, 1939, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1940				1940				1940				1940			
May 17				May 17				June 8				Aug. 4			
a. m.	Second feet	Inches per hour	Inches	a. m.	Second-feet	Inches per hour	Inches	p. m.	Second-feet	Inches per hour	Inches	p. m.	Second-feet	Inches per hour	Inches
2:52-----	0.06	0.0910	0.1790	5:50-----	T	0.0020	0.2350	8:48-----	0.12	0.173	0.1649	9:05-----	T	T	0.0033
:53-----	.05	.0788	.1804	:55-----	T	T	.2351	:49-----	.11	.152	.1676	:06-----	T	T	
:54-----	.05	.0668	.1816	6:00-----	T	T		:50-----	.09	.134	.1700	:07-----	0	0	.0033
:55-----	.04	.0564	.1826	:15-----	T	T		:51-----	.09	.122	.1721	Sept. 24 <sup>9</sup>			
:56-----	.03	.0490	.1835	:30-----	0	0	.2351	:52-----	.08	.111	.1740				
:57-----	.03	.0421	.1843	June 8 <sup>7</sup>				:53-----	.06	.0910	.1757				
:58-----	.02	.0358	.1849					:54-----	.05	.0770	.1771				
:59-----	.02	.0295	.1854					:55-----	.04	.0643	.1783				
3:00-----	.02	.0239	.1858					:56-----	.04	.0564	.1793				
:02-----	.01	.0144	.1864	8:12-----	0	0	0	:57-----	.03	.0456	.1801	2:25-----	0	0	0
:05-----	T	.0072	.1869	:13-----	.02	.0295	.0002	:58-----	.03	.0390	.1808	:26-----	T	T	
:07-----	T	.0045	.1871	:14-----	.04	.0604	.0010	:59-----	.02	.0326	.1814	:27-----	T	T	.0020
:10-----	T	.0020	.1873	:15-----	.04	.0643	.0020	9:00-----	.02	.0267	.1819	:28-----	T	T	.0045
:15-----	T	T	.1874	:16-----	.04	.0564	.0030	:01-----	.01	.0213	.1823	:29-----	T	T	.0001
:45-----	T	T		:17-----	.04	.0527	.0039	:02-----	.01	.0187	.1826	:30-----	.01	.0144	.0003
:50-----	T	.0004		:18-----	.03	.0490	.0047	:03-----	.01	.0144	.1829	:31-----	.02	.0358	.0007
:55-----	T	.0010	.1875	:19-----	.08	.111	.0060	:04-----	.01	.0124	.1831	:32-----	.04	.0643	.0015
:57-----	T	.0020	.1875	:20-----	.10	.147	.0082	:05-----	.01	.0105	.1833	:33-----	.06	.0910	.0028
4:00-----	T	.0072	.1877	:21-----	.12	.173	.0108	:06-----	T	.0072	.1834	:34-----	.07	.0940	.0043
:02-----	.01	.0124	.1880	:22-----	.14	.200	.0139	:07-----	T	.0067	.1835	:35-----	.07	.0940	.0059
:05-----	.01	.0187	.1888	:23-----	.16	.230	.0175	:08-----	T	.0058	.1836	:36-----	.06	.0862	.0074
:07-----	.01	.0213	.1895	:24-----	.15	.216	.0212	:09-----	T	.0045	.1837	:37-----	.06	.0815	.0088
:10-----	.01	.0166	.1905	:25-----	.14	.208	.0247	:10-----	T	.0032	.1838	:38-----	.05	.0726	.0101
:15-----	.01	.0105	.1916	:26-----	.14	.208	.0282	:11-----	T	.0010	.1840	:39-----	.04	.0643	.0112
:20-----	.01	.0088	.1924	:27-----	.17	.247	.0320	:15-----	T	T		:40-----	.04	.0580	.0122
:30-----	.01	.0105	.1932	:28-----	.23	.336	.0369	:20-----	T	T		:41-----	.04	.0527	.0131
:35-----	.01	.0187	.1944	:29-----	.29	.420	.0432	11:00-----	T	T		:42-----	.03	.0456	.0139
:40-----	.02	.0239	.1962	:30-----	.32	.466	.0506	:30-----	0	0	.1840	:43-----	.03	.0421	.0146
:45-----	.02	.0295	.1984	:31-----	.33	.478	.0585	Aug. 4 <sup>8</sup>				:44-----	.02	.0358	.0152
:50-----	.03	.0390	.2012	:33-----	.33	.478	.0745					:45-----	.02	.0326	.0158
:55-----	.03	.0421	.2046	:35-----	.33	.478	.0905	p. m.				:50-----	.02	.0267	.0183
:58-----	.03	.0421	.2067	:36-----	.32	.466	.0984	8:51-----			0	:55-----	.02	.0295	.0206
5:00-----	.04	.0527	.2083	:37-----	.32	.454	.1061					3:00-----	.02	.0284	.0230
:05-----	.04	.0643	.2131	:38-----	.31	.443	.1136					:05-----	.02	.0239	.0252
:07-----	.05	.0684	.2153	:39-----	.29	.420	.1208					:10-----	.02	.0239	.0272
:10-----	.04	.0643	.2186	:40-----	.28	.409	.1277					:15-----	.02	.0345	.0296
:15-----	.03	.0490	.2233	:41-----	.26	.376	.1342					:20-----	.02	.0267	.0322
:20-----	.02	.0358	.2268	:42-----	.23	.336	.1401					:25-----	.01	.0187	.0341
:25-----	.02	.0267	.2294	:43-----	.21	.308	.1455					:30-----	.01	.0124	.0354
:30-----	.01	.0213	.2314	:44-----	.19	.272	.1503					:35-----	T	.0072	.0362
:35-----	.01	.0166	.2330	:45-----	.17	.247	.1546					:40-----	T	.0050	.0367
:40-----	.01	.0105	.2341	:46-----	.15	.216	.1585					:50-----	T	.0032	.0374
:45-----	T	.0045	.2347	:47-----	.13	.192	.1619					4:00-----	T	.0010	.0378
												:15-----	T	T	.0379
												:30-----	0	0	.0379

<sup>1</sup> Total rainfall for storm of July 1, 0.39 inch. Soil dry and hard before rain. Controlled grazing. Area unfurrowed. Grass withered, 1 inch high.

<sup>2</sup> Total rainfall for storm of Aug. 1, 0.32 inch. Soil dry and hard before rain. Grass withered, slightly higher than 1 inch in spots.

<sup>3</sup> Total rainfall for storm of Aug. 11, 0.78 inch. Soil dry and hard before rain. Grass withered.

<sup>4</sup> Total rainfall for storm of Oct. 8, 0.44 inch. Soil dry and hard before rain. Grass

withered. In a few places the grass was 5 inches high, the greater part only 2 inches high.

<sup>5</sup> Run-off from melting snow.

<sup>6</sup> Total rainfall for storm of May 17, 1.43 inches. Soil moist before rain.

<sup>7</sup> Total rainfall for storm of June 8, 1.09 inches. Soil dry before rain.

<sup>8</sup> Total rainfall for storm of Aug. 4, 0.38 inch. Soil moist before rain.

<sup>9</sup> Total rainfall for storm of Sept. 24, 0.67 inch. Soil wet from rains of previous days.



TABLE 50.—Run-off from pasture plot 55-H, August 23, 1939, to December 31, 1940

LOCATION: Latitude 40°16'29", longitude 98°22'13".

## PHYSICAL CHARACTERISTICS:

*Drainage area.*—0.69 acre, rectangular plot 100 by 300 feet.*Length of principal watercourse.*—308 feet.*Topography.*—Undulating, well drained.*Slope.*—Average slope is 5.8 percent. 10 percent of the plot has a slope of 2 to 5 percent, and 90 percent has a slope of 5 to 8 percent.*Erosion condition.*—The area has lost less than 25 percent of the topsoil.*Soil.*—Hastings silt loam, 100 percent.

## LAND USE AND VEGETAL COVER:

*Land use distribution.*—Native pasture, 100 percent. The plot is contour furrowed. Furrows are 5 inches deep and 12 inches wide, spaced 1 foot apart vertically. There are 16 furrows. The plot was fenced in 1940. Uncontrolled grazing was allowed in 1939.*Vegetal cover and soil condition.*—The ecological survey made in October 1939 showed a basal vegetal cover of 32 percent, of which 28 percent was buffalo grass and 4 percent blue grama. The grass did not reach a height of over 1 inch in 1939. At the end of 1940 the grass averaged about 3 inches high. The plot suffered from lack of moisture throughout the season.

## MEASUREMENTS:

*Precipitation.*—Rainfall was measured at recording rain gage B33R (fig.2). Snowfall was measured by weighing and recording rain and snow gages and by cooperative observers' measurements. Snow inventory on the watershed was obtained by inspection.*Run-off.*—Run-off was measured by an H flume 2 feet deep.*Changes in instrumentation during period.*—None.

## SUMMARY OF RECORDS:

*Run-off.*—Annual run-off amount 1940, 0.152 inch. Maximum rate of run-off 1940, 0.049 inch per hour, May 17.

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
	Second-foot	Inches per hour	Inches		Second-foot	Inches per hour	Inches		Second-foot	Inches per hour	Inches		Second-foot	Inches per hour	Inches
1939-----	0	0	0	1940				1940				1940			
Feb. 15 <sup>1</sup>				Feb. 29				Mar. 16				June 8			
p. m.				p. m.				a. m.				p. m.			
3:32-----	0	0	0	6:00-----	0	0	0.0361	11:00-----	T	0.0020	0.0015	8:33-----	0.01	0.0187	0.0043
3:33-----	T	0.0020	0.0001	7:00-----	0	0	0.0361	12:00-----	T	0.0020	0.0035	3:34-----	0.01	0.0166	0.0046
3:35-----	T	0.0032	0.0004	Mar. 4 <sup>1</sup>				p. m.				3:35-----	0.01	0.0144	0.0049
3:40-----	T	0.0045	0.0008	1:23-----	0	0	0	1:00-----	T	0.0010	0.0050	3:36-----	T	0.0105	0.0051
3:45-----	T	0.0053	0.0012	2:24-----	T	0.0045	0.0001	2:00-----	T	T	0.0055	3:37-----	T	0.0072	0.0052
3:50-----	T	0.0053	0.0021	2:25-----	T	0.0045	0.0005	3:00-----	T	T	0.0055	3:38-----	T	0.0058	0.0053
4:00-----	T	0.0053	0.0021	3:00-----	T	0.0058	0.0031	4:00-----	0	0	0.0055	3:39-----	T	0.0045	0.0054
5:00-----	T	0.0053	0.0074	3:30-----	T	0.0067	0.0062	May 17 <sup>2</sup>				4:00-----	T	0.0045	0.0055
6:00-----	T	0.0045	0.0123	4:00-----	T	0.0058	0.0093	a. m.				4:05-----	T	0.0032	0.0058
7:00-----	T	0.0020	0.0139	5:00-----	T	0.0045	0.0145	2:14-----	0	0	0	4:10-----	T	0.0010	0.0059
7:30-----	T	T	0.0144	6:00-----	T	0.0020	0.0177	15-----	0.02	0.0239	0.0002	4:15-----	0	0	0.0059
8:00-----	0	0	0.0144	7:00-----	T	0.0187	0.0187	16-----	0.02	0.0358	0.0007	Aug. 4 <sup>4</sup>			
Feb. 26 <sup>1</sup>				Mar. 5 <sup>1</sup>				17-----	0.03	0.0421	0.0013	a. m.			
p. m.				12:13-----	0	0	0	18-----	0.03	0.0456	0.0020	8:52-----	0	0	0
3:57-----	0	0	0	p. m.				19-----	0.03	0.0490	0.0028	5:53-----	0.01	0.0088	0.0001
4:00-----	T	0.0032	0.0001	1:14-----	T	0.0058	0.0001	20-----	0.03	0.0456	0.0036	5:54-----	0.01	0.0088	0.0002
4:15-----	T	0.0045	0.0011	1:15-----	T	0.0058	0.0015	21-----	0.03	0.0421	0.0043	5:55-----	T	0.0072	0.0003
4:30-----	T	0.0058	0.0024	1:30-----	T	0.0058	0.0015	22-----	0.02	0.0358	0.0049	5:56-----	T	0.0056	0.0004
4:40-----	T	0.0067	0.0034	2:00-----	T	0.0067	0.0016	23-----	0.02	0.0295	0.0054	5:57-----	T	0.0035	0.0005
4:45-----	T	0.0058	0.0039	2:00-----	T	0.0058	0.0018	24-----	0.02	0.0239	0.0058	9:00-----	T	T	0.0006
5:00-----	T	0.0045	0.0052	3:00-----	T	0.0045	0.0160	25-----	0.01	0.0187	0.0062	9:01-----	T	T	
6:00-----	T	0.0020	0.0068	4:00-----	T	0.0020	0.0192	26-----	0.01	0.0166	0.0065	9:02-----	T	T	
6:30-----	T	T	0.0073	5:00-----	T	T	0.0202	27-----	0.01	0.0132	0.0067	9:03-----	0	0	0.0006
7:00-----	0	0	0.0073	6:00-----	0	0	0.0202	28-----	0.01	0.0105	0.0069	Aug. 12 <sup>5</sup>			
Feb. 27 <sup>1</sup>				Mar. 15 <sup>1</sup>				29-----	0.01	0.0095	0.0071	p. m.			
p. m.				p. m.				30-----	0.01	0.0088	0.0073	1:23-----	0	0	0
1:26-----	0	0	0	1:47-----	0	0	0	31-----	T	0.0072	0.0074	1:24-----	T	0.0020	0
1:27-----	T	0.0045	0.0001	2:00-----	T	0.0045	0.0001	32-----	T	0.0061	0.0075	1:25-----	T	0.0020	
1:30-----	T	0.0050	0.0002	2:00-----	T	0.0053	0.0009	33-----	T	0.0053	0.0076	1:30-----	T	T	0.0001
1:35-----	T	0.0072	0.0007	2:05-----	T	0.0058	0.0014	34-----	T	0.0045	0.0077	1:35-----	0	0	0.0001
1:45-----	T	0.0072	0.0019	2:06-----	T	0.0072	0.0015	35-----	T	0.0035	0.0079	1:40-----	0	0	
2:00-----	T	0.0072	0.0037	2:10-----	T	0.0072	0.0020	36-----	T	0.0032	0.0080	1:45-----	0	0	
2:00-----	T	0.0045	0.0095	2:15-----	.01	0.0088	0.0027	37-----	T	0.0045	0.0082	1:50-----	0	0	
3:00-----	T	0.0020	0.0127	2:30-----	.01	0.0088	0.0049	38-----	T	0.0058	0.0084	1:55-----	0	0	
4:00-----	T	T	0.0137	3:00-----	T	0.0072	0.0089	39-----	T	0.0058	0.0085	2:00-----	T	0.0010	0.0002
6:00-----	0	0	0.0137	3:15-----	T	0.0072	0.0107	40-----	0	0.0006	0.0089	2:05-----	T	0.0020	0.0003
Feb. 29 <sup>1</sup>				4:00-----	T	0.0058	0.0123	41-----	0	0	0.0089	2:10-----	0	0	0.0034
p. m.				4:30-----	T	0.0045	0.0149	42-----	0.01	0.0144	0.0001	2:15-----	T	0.0053	0.0029
12:14-----	0	0	0	5:00-----	T	0.0020	0.0181	43-----	0.01	0.0121	0.0003	2:20-----	T	0.0020	0.0032
1:15-----	T	0.0072	0.0001	6:00-----	T	0.0020	0.0201	44-----	0.01	0.0092	0.0005	2:25-----	T	T	0.0034
1:20-----	.01	0.0088	0.0008	7:00-----	T	0.0020	0.0221	45-----	T	0.0072	0.0006	2:30-----	T	T	
1:30-----	.01	0.0105	0.0024	8:00-----	T	0.0010	0.0236	46-----	0.01	0.0088	0.0007	2:35-----	0	0	
1:45-----	.01	0.0113	0.0051	9:00-----	T	T	0.0241	47-----	0.01	0.0105	0.0009	2:40-----	0	0	
1:50-----	.01	0.0113	0.0079	10:00-----	0	0	0.0241	48-----	0.01	0.0144	0.0011	2:45-----	0	0	
2:00-----	.01	0.0105	0.0133	Mar. 16 <sup>1</sup>				49-----	0.01	0.0187	0.0014	2:50-----	0	0	
2:00-----	.01	0.0088	0.0181	a. m.				50-----	0.02	0.0239	0.0018	2:55-----	0	0	
3:00-----	T	0.0072	0.0261	9:45-----	0	0	0	51-----	0.02	0.0295	0.0022	3:00-----	T	0.0010	0.0002
4:00-----	T	0.0045	0.0319	10:00-----	T	0.0010	0.0001	52-----	0.02	0.0267	0.0032	3:05-----	T	T	0.0003
5:00-----	T	0.0020	0.0351	3:00-----	T	0.0010	0.0006	53-----	0.02	0.0239	0.0036	3:10-----	T	T	
				4:45-----	T	0.0020	0.0010	54-----	0.01	0.0213	0.0040	3:15-----	0	0	0.0003

<sup>1</sup> Run-off from melting snow.<sup>2</sup> Total rainfall for storm of May 17, 1.41 inches. Soil moist before rain.<sup>3</sup> Total rainfall for storm of June 8, 1.10 inches. Soil dry before rain.<sup>4</sup> Total rainfall for storm of Aug. 4, 0.45 inch. Soil moist before rain.<sup>5</sup> Total rainfall for storm of Aug. 12, 0.27 inch. Soil dry before rain.<sup>6</sup> Total rainfall for storm of Sept. 24, 0.82 inch. Soil wet from rains of previous days.



TABLE 51.—Run-off from pasture plot 56-H, August 23, 1939, to December 31, 1940

LOCATION: Latitude 40°16'32'', longitude 98°22'10''.

## PHYSICAL CHARACTERISTICS:

Drainage area.—0.69 acre, rectangular plot 100 by 300 feet.

Length of principal watercourse.—308 feet.

Topography.—Undulating, well drained.

Slope.—Average slope is 5.8 percent. 25 percent of the plot has a slope of 2 to 5 percent, and 75 percent has a slope of 5 to 8 percent.

Erosion condition.—The plot has no depressions or gullies and has lost less than 25 percent of the topsoil.

Soil.—Hastings silt loam, 100 percent.

## LAND USE AND VEGETAL COVER:

Land use distribution.—Native pasture, 100 percent. The plot was unfurrowed and unfenced and was grazed almost continuously.

Vegetal cover and soil condition.—The ecological survey made in October 1939 showed a basal vegetal cover of 38 per-

cent, of which 34 percent was buffalo grass and 4 percent blue grama. The grass did not reach a height of over 1 inch and suffered from lack of moisture throughout both years.

## MEASUREMENTS:

Precipitation.—Rainfall was measured at recording rain gage B33R (fig. 2). Snowfall was measured by weighing and recording rain and snow gages and by cooperative observers' measurements. Snow inventory on the watershed was obtained by inspection.

Run-off.—Run-off was measured by an H flume 2 feet deep.

Changes in instrumentation during period.—None.

## SUMMARY OF RECORDS:

Run-off.—Annual run-off amount 1940, 0.516 inch. Maximum rate of run-off 1939, 0.0002 inch per hour, October 8; maximum rate 1940, 0.299 inch per hour, May 17

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1939				1940				1940				1940			
Oct. 8 <sup>1</sup>				Mar. 15				May 17				May 18			
p. m.	Second-foot	Inches per hour	Inches	p. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches	a. m.	Second-foot	Inches per hour	Inches
9:54-----	0	0	0	12:15-----	T	0.0040	0.0001	2:42-----	0.20	0.286	0.0877	7:00-----	T	0.0004	
:55-----	T	0.0002	T	:16-----	T	0.0045	0.0002	:43-----	.19	.272	.0923	:30-----	T	0.0006	0.0002
10:00-----	0	0	T	:17-----	0.01	0.0064	0.0003	:44-----	.18	.255	.0967	8:00-----	T	0.0010	0.0006
1940				:18-----	.01	0.0088	0.0004	:45-----	.17	.247	.1009	:30-----	T	0.0016	0.0012
Feb. 27 <sup>2</sup>				:20-----	.01	0.0124	0.0008	:46-----	.16	.230	.1049	9:00-----	T	0.0010	0.0018
p. m.				:30-----	.01	0.0124	0.0029	:47-----	.16	.223	.1087	:30-----	T	T	0.0020
1:18-----	0	0	0	:40-----	.01	0.0124	0.0050	:48-----	.15	.216	.1124	10:00-----	0	0	0.0020
:19-----	T	T		:42-----	.01	0.0124	0.0054	:49-----	.14	.200	.1159				
:20-----	T	.0010		:44-----	.01	0.0144	0.0058	:50-----	.13	.188	.1191				
:30-----	T	.0014	.0002	:45-----	.01	0.0166	0.0061	:51-----	.12	.179	.1222				
2:00-----	T	.0020	.0010	:47-----	.01	0.0187	0.0067	:52-----	.12	.179	.1252				
:30-----	T	.0032	.0023	:50-----	.01	0.0178	0.0076	:53-----	.11	.158	.1280	8:14-----	0	0	0
:45-----	T	.0045	.0037	1:00-----	.01	0.0166	0.0105	:54-----	.10	.149	.1306	:15-----	.01	.0144	.0001
3:00-----	T	.0058	.0046	:15-----	.01	0.0144	0.0144	:55-----	.10	.140	.1330	:16-----	.02	.0358	.0005
:30-----	.01	.0105	.0087	:30-----	.01	0.0105	0.0175	:56-----	.09	.134	.1353	:17-----	.03	.0490	.0012
4:00-----	.01	.0124	.0144	:45-----	.01	0.0088	0.0199	:57-----	.09	.128	.1375	:18-----	.04	.0563	.0021
:30-----	.01	.0113	.0203	2:00-----	.01	0.0072	0.0219	:58-----	.08	.119	.1396	:19-----	.04	.0526	.0030
5:00-----	T	.0072	.0256	:15-----	.01	0.0058	0.0235	:59-----	.08	.111	.1415	:20-----	.03	.0490	.0038
:30-----	T	.0072	.0298	:30-----	T	.0045	0.0248	3:00-----	.07	.103	.1433	:21-----	.03	.0490	.0046
6:00-----	T	.0032	.0324	:45-----	T	.0045	0.0259	:01-----	.07	.0970	.1450	:22-----	.04	.0526	.0054
:30-----	T	.0020	.0337	3:00-----	T	.0032	0.0269	:02-----	.06	.0910	.1466	:23-----	.04	.0602	.0063
7:00-----	T	T	.0342	:15-----	T	.0020	0.0283	:03-----	.06	.0853	.1481	:24-----	.04	.0642	.0073
8:00-----	0	0	.0342	:30-----	T	.0010	0.0287	:04-----	.06	.0797	.1495	:25-----	.05	.0770	.0085
Feb. 29 <sup>2</sup>				:45-----	T	.0004	0.0289	:05-----	.05	.0744	.1508	:26-----	.07	.0960	.0099
p. m.				30-----	T	T		:06-----	.05	.0693	.1520	:27-----	.08	.111	.0116
12:05-----	0	0	0	:30-----	T	T		:07-----	.04	.0643	.1531	:28-----	.09	.122	.0135
:06-----	T	.0010		:45-----	0	0	.0289	:08-----	.04	.0588	.1541	:29-----	.09	.128	.0156
:10-----	T	.0020	.0001	May 17 <sup>3</sup>				:09-----	.04	.0534	.1550	:30-----	.09	.134	.0178
:15-----	T	.0032	.0003	a. m.				:10-----	.03	.0490	.1559	:35-----	.09	.134	.0288
:30-----	.01	.0058	.0014	2:12-----	0	0	0	:11-----	.03	.0442	.1567	:36-----	.09	.128	.0310
:45-----	.01	.0113	.0036	:13-----	.01	.0105	.0001	:12-----	.03	.0396	.1574	:37-----	.09	.122	.0331
1:00-----	.01	.0166	.0071	:14-----	.02	.0295	.0004	:13-----	.02	.0352	.1580	:38-----	.09	.128	.0352
:15-----	.01	.0166	.0113	:15-----	.03	.0490	.0011	:14-----	.02	.0308	.1586	:39-----	.10	.146	.0375
:30-----	.01	.0144	.0152	:16-----	.05	.0684	.0021	:15-----	.02	.0267	.1591	:40-----	.13	.186	.0403
2:00-----	.01	.0105	.0214	:17-----	.06	.0815	.0033	:16-----	.02	.0223	.1595	:41-----	.15	.215	.0436
:30-----	T	.0045	.0252	:18-----	.07	.101	.0048	:17-----	.01	.0187	.1598	:42-----	.16	.223	.0472
3:00-----	T	.0020	.0268	:19-----	.08	.114	.0066	:18-----	.01	.0166	.1601	:43-----	.16	.231	.0510
4:00-----	T	T	.0278	:20-----	.09	.128	.0086	:19-----	.01	.0144	.1604	:44-----	.17	.239	.0549
5:00-----	0	0	.0278	:21-----	.09	.132	.0108	:20-----	.01	.0124	.1606	:45-----	.17	.247	.0589
Mar. 4 <sup>2</sup>				:22-----	.09	.134	.0130	:21-----	.01	.0105	.1608	:46-----	.17	.239	.0629
p. m.				:23-----	.10	.139	.0153	:22-----	.01	.0088	.1610	:47-----	.16	.231	.0668
12:27-----	0	0	0	:24-----	.10	.144	.0177	:23-----	T	.0072	.1611	:48-----	.15	.215	.0705
:28-----	T	.0020		:25-----	.11	.153	.0226	:24-----	T	.0058	.1612	:49-----	.14	.208	.0740
:30-----	T	.0032	.0001	:26-----	.11	.153	.0252	:25-----	T	.0050	.1613	:50-----	.13	.193	.0773
1:00-----	T	.0032	.0017	:27-----	.11	.153	.0252	:26-----	T	.0020	.1616	:51-----	.13	.186	.0805
2:00-----	T	.0020	.0043	:28-----	.11	.155	.0278	:27-----	T	T	.1618	:52-----	.12	.172	.0835
3:00-----	T	.0010	.0058	:29-----	.11	.158	.0304	:28-----	T	T		:53-----	.11	.159	.0863
4:00-----	T	T	.0063	:30-----	.14	.200	.0333	:29-----	T	T		:54-----	.10	.146	.0888
5:00-----	0	0	.0063	:31-----	.17	.238	.0369	:30-----	T	.0010	.1619	:55-----	.09	.134	.0911
Mar. 15 <sup>2</sup>				:32-----	.17	.247	.0409	:31-----	T	.0020	.1623	:56-----	.09	.128	.0933
p. m.				:33-----	.18	.255	.0451	:32-----	T	T	.1625	:57-----	.09	.122	.0954
12:13-----	0	0	0	:34-----	.18	.263	.0494	:33-----	T	T		:58-----	.08	.111	.0973
:14-----	T	.0032		:35-----	.19	.272	.0539	:34-----	T	T		:59-----	.07	.101	.0991
				:36-----	.20	.280	.0585	6:00-----	0	0	.1625	9:00-----	.06	.0910	.1007
				:37-----	.20	.286	.0632	:10-----	0	0		:01-----	.06	.0862	.1022
				:38-----	.20	.293	.0680					:02-----	.06	.0815	.1036
				:39-----	.21	.299	.0729	May 18 <sup>4</sup>				:03-----	.05	.0726	.1049
				:40-----	.21	.299	.0779	a. m.				:04-----	.05	.0684	.1061
				:41-----	.21	.295	.0829	6:25-----	0	0	0	:05-----	.04	.0642	.1072
								:30-----	T	T		:06-----	.04	.0563	.1082
								:45-----	T	T		:07-----	.03	.0490	.1091
												:08-----	.03	.0456	.1099

See footnotes at end of table, p. 116.



TABLE 51.—Run-off from pasture plot 56-H, August 23, 1939, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1940				1940				1940				1940			
June 8				Aug. 4				Sept. 24				Sept. 24			
p. m.	Second-feet	Inches per hour	Inches	a. m.	Second-feet	Inches per hour	Inches	a. m.	Second-feet	Inches per hour	Inches	a. m.	Second-feet	Inches per hour	Inches
9:09-----	0.03	0.0421	0.1106	9:05-----	T	0.0010		2:34-----	0.04	0.0604	0.0039	3:15-----	0.05	0.0684	0.1147
:10-----	.03	.0389	.1113	:06-----	T	T		:35-----	.04	.0642	.0049	:16-----	.05	.0651	.1158
:11-----	.02	.0358	.1119	:07-----	T	T		:36-----	.05	.0684	.0060	:17-----	.04	.0617	.1169
:12-----	.02	.0295	.1124	:08-----	0	0	0.0048	:37-----	.05	.0726	.0072	:18-----	.04	.0586	.1179
:13-----	.02	.0239	.1128					:38-----	.05	.0726	.0084	:19-----	.04	.0556	.1189
:14-----	.01	.0213	.1132	Aug. 12 <sup>7</sup>				:39-----	.12	.172	.0104	:20-----	.04	.0527	.1198
:15-----	.01	.0187	.1135	p. m.				:40-----	.16	.231	.0138	:21-----	.04	.0504	.1207
:16-----	.01	.0165	.1138	1:20-----	0	0	0	:41-----	.18	.255	.0178	:22-----	.03	.0483	.1215
:17-----	.01	.0144	.1141	:21-----	T	.0045		:42-----	.19	.272	.0222	:23-----	.03	.0463	.1223
:18-----	.01	.0124	.1143	:22-----	.01	.0088	.0001	:43-----	.20	.280	.0268	:24-----	.03	.0441	.1231
:19-----	.01	.0105	.1145	:23-----	.01	.0124	.0003	:44-----	.20	.295	.0316	:25-----	.03	.0421	.1238
:20-----	.01	.0089	.1147	:24-----	.01	.0144	.0005	:45-----	.20	.280	.0364	:26-----	.03	.0395	.1245
:21-----	T	.0072	.1148	:25-----	.01	.0144	.0007	:46-----	.19	.270	.0410	:27-----	.03	.0371	.1251
:22-----	T	.0058	.1149	:26-----	.01	.0144	.0009	:47-----	.18	.260	.0454	:28-----	.02	.0345	.1257
:23-----	T	.0045	.1150	:27-----	.01	.0132	.0011	:48-----	.17	.250	.0497	:29-----	.02	.0320	.1263
:24-----	T	.0032	.1151	:28-----	.01	.0121	.0013	:49-----	.17	.240	.0538	:30-----	.02	.0295	.1268
:25-----	T	.0020		:29-----	.01	.0105	.0015	:50-----	.16	.231	.0577	:31-----	.02	.0277	.1273
:26-----	T	.0010		:30-----	.01	.0088	.0017	:51-----	.17	.242	.0616	:32-----	.02	.0262	.1278
:27-----	T			:31-----	T	.0032	.0022	:52-----	.18	.253	.0657	:33-----	.02	.0244	.1282
:28-----	T			:32-----	T	T	.0023	:53-----	.18	.264	.0700	:34-----	.02	.0229	.1286
:29-----	T			:33-----	T	T		:54-----	.19	.277	.0745	:35-----	.01	.0213	.1290
:30-----	T							:55-----	.12	.179	.0783	:36-----	.01	.0197	.1293
:31-----	T							:56-----	.12	.169	.0812	:37-----	.01	.0183	.1296
:32-----	T							:57-----	.11	.160	.0839	:38-----	.01	.0170	.1299
:33-----	T							:58-----	.11	.151	.0865	:39-----	.01	.0157	.1302
	0	0	.1151	Sept. 24				:59-----	.10	.142	.0889	:40-----	.01	.0144	.1304
Aug. 4 <sup>8</sup>				a. m.				3:00-----	.09	.134	.0912	:41-----	.01	.0132	.1306
p. m.				2:00-----	0	0	0	:01-----	.09	.127	.0934	:42-----	.01	.0128	.1308
8:49-----	0	0	0	:05-----	T	T		:02-----	.08	.120	.0955	:43-----	.01	.0118	.1310
:50-----	.02	.0239	.0002	:10-----	T	T		:03-----	.08	.114	.0974	:44-----	.01	.0112	.1312
:51-----	.03	.0390	.0007	:14-----	T	T		:04-----	.07	.107	.0992	:45-----	.01	.0105	.1314
:52-----	.03	.0390	.0013	:15-----	T	T		:05-----	.07	.101	.1009	:46-----	.01	.0095	.1316
:53-----	.02	.0352	.0019	:20-----	T	T		:06-----	.07	.0969	.1025	:47-----	.01	.0085	.1318
:54-----	.02	.0314	.0025	:25-----	T	T		:07-----	.06	.0930	.1041	:48-----	.01	.0075	.1319
:55-----	.02	.0278	.0030	:26-----	T	.0010		:08-----	.06	.0891	.1056	:49-----	T	.0066	.1320
:56-----	.02	.0245	.0034	:27-----	T	.0020		:09-----	.06	.0852	.1071	:50-----	T	.0059	.1321
:57-----	.01	.0213	.0038	:28-----	T	.0072	.0001	:10-----	.06	.0815	.1085	:55-----	T	.0032	.1325
:58-----	.01	.0144	.0041	:29-----	.01	.0144	.0003	:11-----	.05	.0788	.1098	4:00-----	T	.0010	.1326
:59-----	.01	.0124	.0043	:30-----	.02	.0239	.0006	:12-----	.05	.0762	.1111		T	T	
9:00-----	.01	.0088	.0045	:31-----	.03	.0421	.0012	:13-----	.05	.0734	.1123		T	T	
:01-----	T	.0069	.0046	:32-----	.03	.0490	.0020	:14-----	.05	.0709	.1135		0	0	.1326
:02-----	T	.0053	.0047												
:03-----	T	.0038	.0048												
:04-----	T	.0022													

<sup>1</sup> Total rainfall for storm of Oct. 8, 0.18 inch. Soil dry and hard before rain. Heavily grazed, unfurrowed, grass withered, 1 inch high.

<sup>2</sup> Run-off from melting snow.

<sup>3</sup> Total rainfall for storm of May 17, 1.41 inches. Soil moist before rain.

<sup>4</sup> Total rainfall for storm of May 18, 0.27 inch. Soil wet before rain.

<sup>5</sup> Total rainfall for storm of June 8, 1.10 inches. Soil dry before rain.

<sup>6</sup> Total rainfall for storm of Aug. 4, 0.45 inch. Soil moist before rain.

<sup>7</sup> Total rainfall for storm of Aug. 12, 0.27 inch. Soil dry before rain.

<sup>8</sup> Total rainfall for storm of Sept. 24, 0.82 inch. Soil wet from rains of previous days.



TABLE 52.—Run-off from pasture plot 57—H, August 23, 1939, to December 31, 1940

LOCATION: Latitude 40°16'35", longitude 98°22'10".

## PHYSICAL CHARACTERISTICS:

*Drainage area.*—0.69 acre, rectangular plot 100 by 300 feet.*Length of principal watercourse.*—308 feet.*Topography.*—Undulating, well drained.*Slope.*—Average slope is 5.5 percent; 10 percent of the plot has a slope of 2 to 5 percent, and 90 percent has a slope of 5 to 8 percent.*Erosion condition.*—The plot has no depressions or gullies and has lost less than 25 percent of the topsoil.*Soil.*—Hastings silt loam, 100 percent.

## LAND USE AND VEGETAL COVER:

*Land use distribution.*—Native pasture, 100 percent. The plot is unfurrowed. It was fenced in 1940. Uncontrolled grazing was allowed in 1939.*Vegetal cover and soil condition.*—The ecological survey made in October 1939 showed a basal cover of 29 percent, of

which 21 percent was buffalo grass and 8 percent blue grama. The grass did not reach a height of over 1 inch and suffered from lack of moisture throughout the 1939 season. At the end of the 1940 growing season the average height of the grass was 2 inches.

## MEASUREMENTS:

*Precipitation.*—Rainfall was measured at recording rain gage B33R (fig. 2). Snowfall was measured by weighing and recording rain and snow gages and by cooperative observers' measurements. Snow inventory on the watershed was obtained by inspection.*Run-off.*—Run-off was measured by an H flume 2 feet deep.*Changes in instrumentation during period.*—None.

## SUMMARY OF RECORDS:

*Run-off.*—Annual run-off amount 1940, 0.936 inch. Maximum rate of run-off 1939, 0.0004 inch per hour, October 8; maximum rate 1940, 0.632 inch per hour, June 8.

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1939				1940				1940				1940			
Oct 8 <sup>1</sup>				Feb. 27				May 17				May 17			
<i>p. m.</i>	<i>Second-foot</i>	<i>Inches per hour</i>	<i>Inches</i>	<i>p. m.</i>	<i>Second-foot</i>	<i>Inches per hour</i>	<i>Inches</i>	<i>a. m.</i>	<i>Second-foot</i>	<i>Inches per hour</i>	<i>Inches</i>	<i>a. m.</i>	<i>Second-foot</i>	<i>Inches per hour</i>	<i>Inches</i>
9:53-----	0	0	0	2:30-----	T	0.0045	0.0042	2:37-----	0.24	0.346	0.0980	4:10-----	0.01	0.0144	0.2202
:54-----	T	.0003		3:00-----	T	.0058	.0068	:38-----	.23	.336	.1037	:15-----	.01	.0124	.2213
:55-----	T	.0004		4:00-----	T	.0058	.0126	:39-----	.24	.346	.1094	:20-----	.01	.0124	.2223
:56-----	T	.0004		5:00-----	T	.0045	.0178	:40-----	.24	.350	.1152	:25-----	.01	.0144	.2234
:57-----	T	.0004		6:00-----	T	.0020	.0210	:41-----	.24	.350	.1210	:30-----	.01	.0213	.2249
10:00-----	T	.0004		7:00-----	T	.0220	.0220	:42-----	.23	.336	.1267	:35-----	.02	.0267	.2269
:05-----	T	.0002		8:00-----	0	0	.0220	:43-----	.22	.323	.1322	:40-----	.02	.0295	.2292
:10-----	0	0	T					:44-----	.21	.307	.1374	:45-----	.02	.0358	.2319
1940				Feb. 29 <sup>2</sup>											
Feb. 14 <sup>2</sup>				<i>a. m.</i>											
<i>p. m.</i>				11:26-----	0	0	0					5:00-----	.05	.0726	.2449
3:25-----	0	0	0	:27-----	T	.0020		:48-----	.17	.244	.1557	:05-----	.05	.0726	.2509
:26-----	T	T		:30-----	T	.0040	.0002	:49-----	.16	.229	.1596	:10-----	.06	.0863	.2575
:30-----	T	.0010		:45-----	T	.0045	.0012	:50-----	.15	.216	.1633	:15-----	.07	.0940	.2650
:35-----	T	.0020	.0001	12:00-----	T	.0058	.0025	:51-----	.14	.203	.1668	:20-----	.06	.0910	.2727
4:35-----	T	.0020	.0022	<i>p. m.</i>				:52-----	.13	.191	.1701	:25-----	.05	.0770	.2797
:40-----	T	.0025	.0024	12:10-----	T	.0067	.0035	:53-----	.13	.180	.1732	:30-----	.05	.0684	.2858
:45-----	T	.0025	.0026	:12-----	T	.0072	.0037	:54-----	.12	.170	.1761	:35-----	.04	.0604	.2912
5:00-----	T	.0025	.0032	:15-----	.01	.0088	.0041	:55-----	.11	.158	.1788	:40-----	.03	.0490	.2958
6:00-----	T	.0025	.0037	:20-----	.01	.0124	.0050	:56-----	.10	.149	.1814	:45-----	.02	.0358	.2993
:05-----	T	.0032	.0059	:25-----	.01	.0124	.0060	:57-----	.10	.139	.1838	:50-----	.02	.0295	.3020
:06-----	T	.0050	.0060	:30-----	.01	.0105	.0070	:58-----	.09	.129	.1860	:55-----	.01	.0213	.3041
:10-----	T	.0050	.0063	:45-----	T	.0072	.0092	:59-----	.08	.120	.1881	6:00-----	.01	.0144	.3056
:20-----	T	.0045	.0071	1:00-----	T	.0058	.0108	3:00-----	.08	.111	.1900	:05-----	.01	.0088	.3066
:30-----	T	.0020	.0076	:30-----	T	.0045	.0134	:01-----	.07	.103	.1918	:10-----	T	.0045	.3072
:40-----	T	.0010	.0078	:45-----	T	.0032	.0153	:02-----	.07	.0970	.1935	:15-----	T	.0010	.3074
:50-----	T	T	.0079	2:00-----	T	.0020	.0179	:03-----	.06	.0910	.1951	:20-----	T	T	
7:00-----	T	T		3:00-----	T	.0189		:04-----	.06	.0853	.1966	:30-----	T	T	
:30-----	0	0	.0079	4:00-----	T	.0189		:05-----	.05	.0745	.1993	:40-----	0	0	.3074
Feb. 26 <sup>2</sup>				5:00-----	0	0	.0189	:06-----	.05	.0745	.1993	June 8 <sup>4</sup>			
<i>p. m.</i>				May 17 <sup>3</sup>				:07-----	.05	.0693	.2005	<i>p. m.</i>			
2:03-----	0	0	0	<i>a. m.</i>				:08-----	.04	.0643	.2016	8:16-----	0	0	0
:04-----	T	T		2:13-----	0	0	0	:09-----	.04	.0604	.2026	:17-----	.05	.0726	.0006
:05-----	T	.0004		:14-----	.02	.0295	.0002	:10-----	.04	.0564	.2036	:18-----	.07	.101	.0020
:10-----	T	.0020	.0001	:15-----	.04	.0564	.0009	:11-----	.04	.0527	.2045	:19-----	.07	.106	.0037
:20-----	T	.0020	.0004	:16-----	.06	.0815	.0021	:12-----	.03	.0490	.2053	:20-----	.08	.111	.0055
:30-----	T	.0025	.0008	:17-----	.07	.101	.0036	:13-----	.03	.0456	.2061	:21-----	.09	.122	.0074
3:00-----	T	.0028	.0021	:18-----	.09	.122	.0055	:14-----	.03	.0421	.2068	:22-----	.09	.134	.0095
4:00-----	T	.0032	.0051	:19-----	.10	.140	.0077	:15-----	.03	.0390	.2075	:23-----	.11	.152	.0119
5:00-----	T	.0020	.0077	:20-----	.11	.158	.0102	:16-----	.02	.0358	.2081	:24-----	.13	.185	.0147
6:00-----	T	T	.0087	:21-----	.13	.193	.0131	:17-----	.02	.0326	.2087	:25-----	.16	.230	.0182
7:00-----	0	0	.0087	:22-----	.15	.216	.0165	:18-----	.02	.0295	.2092	:26-----	.20	.280	.0224
Feb. 27 <sup>2</sup>				:23-----	.16	.223	.0202	:19-----	.02	.0267	.2097	:27-----	.25	.356	.0277
<i>p. m.</i>				:24-----	.17	.247	.0241	:20-----	.02	.0239	.2101	:28-----	.29	.420	.0342
1:04-----	0	0	0	:25-----	.18	.263	.0283	:21-----	.01	.0208	.2113	:29-----	.32	.466	.0416
:05-----	T	.0010		:26-----	.21	.299	.0330	:22-----	.01	.0197	.2116	:30-----	.37	.526	.0499
:10-----	T	.0020	.0001	:27-----	.22	.318	.0381	:23-----	.01	.0187	.2119	:31-----	.39	.565	.0590
:20-----	T	.0032	.0005	:28-----	.23	.336	.0435	:24-----	.01	.0178	.2122	:32-----	.42	.604	.0687
:25-----	T	.0025	.0007	:29-----	.25	.356	.0493	:25-----	.01	.0170	.2125	:33-----	.43	.618	.0789
:30-----	T	.0025	.0009	:30-----	.26	.366	.0553	:26-----	.01	.0161	.2128	:34-----	.44	.632	.0893
2:00-----	T	.0032	.0023	:31-----	.26	.376	.0615	:27-----	.01	.0153	.2131	:35-----	.43	.618	.0997
See footnotes at end of table, p. 118.				:32-----	.26	.376	.0678	:28-----	.01	.0144	.2133	:36-----	.41	.591	.1098
				:33-----	.26	.376	.0741	:29-----	.01	.0124	.2144	:37-----	.39	.565	.1194
				:34-----	.26	.366	.0803	:30-----	.01	.0105	.2154	:38-----	.38	.539	.1286
				:35-----	.25	.356	.0863	:31-----	.01	.0088	.2162	:39-----	.36	.513	.1374
				:36-----	.24	.350	.0922	:32-----	.01	.0072	.2169	:40-----	.34	.489	.1458
								:33-----	.01	.0079	.2175	:41-----	.33	.478	.1539
								:34-----	.01	.0088	.2182	:42-----	.32	.466	.1618
								4:00-----	.01	.0124	.2191	:43-----	.32	.457	.1695



TABLE 52.—Run-off from pasture plot 57-H, August 23, 1939, to December 31, 1940—Continued

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
1940				1940				1940				1940			
June 8				Aug. 4				Aug. 12				Sept. 24			
p. m.	Second-feet	Inches per hour	Inches	p. m.	Second-feet	Inches per hour	Inches	p. m.	Second-feet	Inches per hour	Inches	a. m.	Second-feet	Inches per hour	Inches
8:44-----	0.31	0.450	0.1771	8:51-----	0.06	0.0910	0.0018	1:37-----	0.01	0.0213	0.0071	2:35-----	0.25	0.356	0.0200
:45-----	.31	.443	.1845	:52-----	.08	.111	.0035	:39-----	.02	.0239	.0079	:36-----	.29	.420	.0265
:46-----	.29	.411	.1916	:53-----	.08	.111	.0053	:40-----	.02	.0239	.0083	:37-----	.32	.454	.0338
:47-----	.26	.380	.1982	:54-----	.08	.111	.0071	:42-----	.02	.0239	.0091	:38-----	.33	.478	.0416
:48-----	.24	.352	.2043	:55-----	.08	.117	.0090	:45-----	.01	.0213	.0102	:39-----	.35	.501	.0498
:49-----	.23	.325	.2099	:56-----	.08	.114	.0109	:50-----	.01	.0124	.0116	:40-----	.35	.501	.0582
:50-----	.21	.299	.2151	:57-----	.08	.111	.0128	:55-----	.01	.0088	.0120	:41-----	.33	.478	.0664
:51-----	.19	.277	.2199	:58-----	.07	.106	.0146	:52-----	T	.0045	.0123	:42-----	.32	.454	.0742
:52-----	.18	.257	.2243	:59-----	.07	.101	.0163	2:00-----	T	.0010	.0125	:43-----	.30	.432	.0816
:53-----	.16	.237	.2284	9:00-----	.07	.0990	.0180	:05-----	T	T	T	:44-----	.29	.420	.0887
:54-----	.15	.219	.2322	:01-----	.07	.0960	.0196	:15-----	T	T	T	:45-----	.28	.398	.0955
:55-----	.14	.200	.2357	:02-----	.06	.0910	.0212	:20-----	T	T	T	:46-----	.26	.376	.1019
:56-----	.13	.184	.2389	:03-----	.06	.0815	.0226	Sept. 23 <sup>7</sup>				:47-----	.24	.346	.1079
:57-----	.12	.170	.2419	:04-----	.05	.0753	.0239					:48-----	.23	.327	.1135
:58-----	.11	.155	.2446	:05-----	.05	.0693	.0251					:49-----	.21	.308	.1188
:59-----	.10	.142	.2471	:06-----	.04	.0643	.0262					:50-----	.20	.290	.1238
9:00-----	.09	.128	.2493	:07-----	.04	.0572	.0272					:51-----	.20	.280	.1286
:01-----	.08	.119	.2514	:08-----	.04	.0505	.0281	3:37-----	0	0	0	:52-----	.18	.263	.1331
:02-----	.08	.109	.2533	:09-----	.03	.0442	.0289	:38-----	T	.0020	.0001	:53-----	.17	.247	.1373
:03-----	.07	.100	.2550	:10-----	.03	.0383	.0296	:40-----	T	.0032	.0001	:54-----	.16	.230	.1413
:04-----	.06	.0910	.2566	:11-----	.02	.0326	.0302	:42-----	T	.0045	.0002	:55-----	.15	.216	.1450
:05-----	.06	.0862	.2581	:12-----	.02	.0267	.0307	:43-----	T	.0072	.0003	:56-----	.14	.200	.1485
:06-----	.06	.0815	.2595	:13-----	.02	.0239	.0311	:45-----	T	.0105	.0006	:57-----	.13	.193	.1518
:07-----	.05	.0726	.2608	:14-----	.01	.0203	.0315	:50-----	T	.0088	.0014	:58-----	.13	.185	.1550
:08-----	.05	.0676	.2620	:15-----	.01	.0170	.0318	:55-----	T	.0072	.0021	:59-----	.12	.179	.1580
:09-----	.04	.0619	.2631	:16-----	.01	.0144	.0321	4:00-----	T	.0058	.0026	3:00-----	.12	.173	.1609
:10-----	.04	.0564	.2641	:17-----	.01	.0117	.0323	:05-----	T	.0045	.0030	:01-----	.11	.164	.1637
:11-----	.04	.0527	.2650	:18-----	.01	.0092	.0325	:10-----	T	.0032	.0033	:02-----	.11	.156	.1664
:12-----	.03	.0490	.2658	:19-----	T	.0072	.0326	:15-----	T	.0010	.0035	:03-----	.10	.149	.1689
:13-----	.03	.0442	.2666	:20-----	T	.0058	.0327	:20-----	T	T	T	:04-----	.10	.142	.1713
:14-----	.03	.0396	.2673	:21-----	T	.0045	.0328	:30-----	T	T	T	:05-----	.09	.134	.1736
:15-----	.02	.0358	.2679	:22-----	T	.0032	.0329	:35-----	0	0	.0035	:10-----	.08	.120	.1842
:20-----	.02	.0239	.2704	:23-----	T	.0020	.0329	Sept. 24 <sup>8</sup>				:15-----	.08	.114	.1942
:25-----	.01	.0144	.2720	:24-----	T	.0010	.0329					:20-----	.07	.101	.2032
:30-----	.01	.0105	.2730	:25-----	T	T	.0329					:25-----	.07	.0940	.2113
:35-----	T	.0072	.2737	:30-----	T	T	.0329					:30-----	.05	.0753	.2183
:40-----	T	.0058	.2742	:35-----	T	T	.0329					:35-----	.04	.0604	.2240
:45-----	T	.0045	.2746	:40-----	0	0	.0329					:40-----	.04	.0512	.2286
:50-----	T	.0032	.2749	Aug. 12 <sup>6</sup>								:45-----	.03	.0456	.2326
:55-----	T	.0020	.2751	p. m.								:50-----	.03	.0377	.2361
10:00-----	T	T	.2752	1:22-----	0	0	0					:55-----	.02	.0308	.2389
:05-----	T	T		:23-----	.02	.0267	.0002					4:00-----	.02	.0239	.2412
:10-----	T	T		:24-----	.02	.0326	.0007					:05-----	.01	.0187	.2430
:15-----	0	0	.2752	:25-----	.02	.0358	.0013					:10-----	.01	.0144	.2444
Aug. 4 <sup>5</sup>				:27-----	.02	.0358	.0025					:15-----	.01	.0105	.2454
p. m.	0	0	0	:29-----	.02	.0326	.0036					:20-----	T	.0072	.2461
8:49-----	0	0	0	:30-----	.02	.0295	.0041					:25-----	T	.0045	.2466
:50-----	.05	.0643	.0005	:35-----	.02	.0239	.0063					:30-----	T	.0020	.2469
												:35-----	T	T	.2470
												:40-----	0	0	.2470

<sup>1</sup> Total rainfall for storm of Oct. 8, 0.18 inch. Soil dry and hard before rain. Heavily grazed, unfurrowed. Grass withered, 1 inch high.

<sup>2</sup> Run-off from melting snow.

<sup>3</sup> Total rainfall for storm of May 17, 1.41 inches. Soil moist before rain.

<sup>4</sup> Total rainfall for storm of June 8, 1.10 inches. Soil dry before rain.

<sup>5</sup> Total rainfall for storm of Aug. 4, 0.45 inch. Soil moist before rain.

<sup>6</sup> Total rainfall for storm of Aug. 12, 0.27 inch. Soil dry before rain.

<sup>7</sup> Total rainfall for storm of Sept. 22-23, 0.64 inch. Soil dry before rain.

<sup>8</sup> Total rainfall for storm of Sept. 24, 0.82 inch. Soil wet from rains of previous days.



TABLE 53.—Run-off from pasture plot 58-H, August 23, 1939, to December 31, 1940

LOCATION: Latitude 40°16'38'', longitude 98°22'14''.

## PHYSICAL CHARACTERISTICS:

Drainage area.—0.69 acre, rectangular plot 100 by 300 feet.

Length of principal watercourse.—308 feet.

Topography.—Undulating, well drained.

Slope.—Average slope is 5.5 percent. 23 percent of the watershed has a slope of 2 to 5 percent; 77 percent, 5 to 8 percent.

Erosion condition.—The area has lost less than 25 percent of the topsoil.

Soil.—Hastings silt loam, 100 percent.

## LAND USE AND VEGETAL COVER:

Land use distribution.—Native pasture, 100 percent. The plot was plain in 1939 and furrowed in 1940. Furrows are 5 inches deep and 12 inches wide, spaced 1 foot apart vertically. There are 16 furrows in the plot. The plot is unfenced and was grazed almost continuously.

Vegetal cover and soil condition.—An ecological survey made in the early part of 1940 showed a basal cover of 21 percent, of which 13 percent was buffalo grass and 8 percent blue grama. Little change occurred in the cover during 1939 and 1940, the grasses never reaching a height of over 1 inch.

## MEASUREMENTS:

Precipitation.—Rainfall was measured at recording rain gage B33R (fig. 2). Snowfall was measured by weighing and recording rain and snow gages and by cooperative observers' measurements. Snow inventory on the watershed was obtained by inspection.

Run-off.—Run-off was measured by an H flume 2 feet deep.

Changes in instrumentation during the period.—None.

## SUMMARY OF RECORDS:

Run-off.—Annual run-off amount 1940, 0.022 inch. Maximum rate of run-off 1940, 0.019 inch per hour, June 8.

Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off	Date and time	Instantaneous rate of run-off		Accumulated run-off
	Second-foot	Inches per hour	Inches		Second-foot	Inches per hour	Inches		Second-foot	Inches per hour	Inches		Second-foot	Inches per hour	Inches
1939				1940				1940				1940			
Feb. 14 <sup>1</sup>	0	0	0	May 17				June 8				Aug. 4			
p. m.				a. m.				p. m.				p. m.			
2:49	0	0	0	2:19	0.01	0.0088	0.0002	8:20	0.01	0.0105	0.0007	8:52	0	0	0.0006
:50	T	.0010	.0001	:20	T	.0072	.0003	:22	T	.0058	.0010	:53	T	T	
:55	T	.0020	.0003	:22	.01	.0088	.0006	:24	T	.0058	.0012				
3:00	T	.0032	.0009	:23	T	.0072	.0007	:25	.01	.0088	.0013	Aug. 12 <sup>5</sup>			
:30	T	.0032	.0019	:25	T	.0058	.0009	:27	.01	.0144	.0017	p. m.			
4:00	T	.0020	.0032	:30	T	.0032	.0013	:29	.01	.0187	.0023	1:21	0	0	0
:30	T	.0020	.0042	:35	T	.0020	.0015	:30	.01	.0166	.0026	:22	T	.0032	
5:00	T	.0020	.0052	:40	T	.0020	.0017	:31	.01	.0144	.0029	:23	T	.0020	
6:00	T	T	.0062	:42	T	.0032	.0018	:33	.01	.0105	.0033	:24	T	.0010	
7:00	0	0	.0062	:45	T	.0020	.0019	:35	T	.0072	.0036	:25	T	T	
Feb. 15 <sup>1</sup>				:50	T	.0020	.0021	:37	T	.0045	.0038	:26	T	T	
p. m.				3:00	T	.0010	.0023	:40	T	.0045	.0040	:27	0	0	T
2:03	0	0	0	:30	T	.0006	.0027	:45	T	.0045	.0044				
:05	T	.0010	.0001	4:00	T	.0006	.0030	:50	T	.0032	.0047	Sept. 24 <sup>6</sup>			
:10	T	.0010	.0003	:03	T	.0006		:55	T	.0020	.0049	a. m.			
:20	T	.0010	.0005	:07	T	.0006		9:00	T	.0020	.0051	2:27	0	0	0
:30	T	.0010	.0010	:08	T	.0010		:15	T	.0010	.0055	:28	.01	.0105	.0001
3:00	T	.0010	.0015	:10	T	.0010	.0030	:30	T	.0010	.0057	:29	.01	.0144	.0003
:30	T	.0010	.0017	:20	T	.0010	.0032	:45	T	.0010	.0059	:30	.01	.0166	.0006
4:00	T	T	.0017	:30	T	.0010	.0034	10:00	T	T	.0060	:31	.01	.0144	.0009
5:00	0	0		:45	T	.0010	.0036	11:00	0	0	.0060	:32	.01	.0124	.0011
May 17 <sup>2</sup>				5:00	T	.0020	.0040	Aug. 4 <sup>4</sup>				:34	.01	.0105	.0015
a. m.				:30	T	.0010	.0048	p. m.				:35	T	.0072	.0016
2:17	0	0	0	6:00	T	T	.0049	8:45	0	0	0	:37	T	.0045	.0018
:18	.01	.0088	.0001	:15	0	0	.0049	:46	.01	.0105	.0001	:39	T	.0020	.0019
				June 8 <sup>3</sup>				:47	.01	.0105	.0003	:40	T	.0010	
				p. m.				:48	T	.0072	.0004	:41	T	T	
				8:17	0	0	0	:49	T	.0045	.0005	:43	T	T	
				:18	.01	.0187	.0002	:50	T	.0020	.0006	:45	0	0	.0019
								:51	T	T					

<sup>1</sup> Run-off from melting snow.<sup>2</sup> Total rainfall for storm of May 17, 1.41 inches. Soil moist before rain.<sup>3</sup> Total rainfall for storm of June 8, 1.10 inches. Soil dry before rain.<sup>4</sup> Total rainfall for storm of Aug. 4, 0.45 inches. Soil moist before rain.<sup>5</sup> Total rainfall for storm of Aug. 12, 0.27 inches. Soil dry before rain.<sup>6</sup> Total rainfall for storm of Sept. 24, 0.82 inch. Soil wet from rains of previous day.



TABLE 54.—Rainfall at station A31R for storms producing run-off, 1938-40

Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity
STORM OF JULY 25, 1938			STORM OF APR. 4, 1939—Continued			STORM OF MAY 20, 1939			STORM OF JUNE 1, 1939—Continued			STORM OF JUNE 20, 1939—Continued		
July 25			Apr. 4			May 20			June 1			June 20		
a. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour
3:10-----	0	-----	9:45-----	0.04	0.12	1:02-----	0	-----	5:55-----	0.08	1.20	1:10-----	0.44	4.80
:24-----	.01	0.04	:55-----	.07	.18	:04-----	.02	0.60	:56-----	.09	.60	:12-----	.65	6.30
:25-----	.02	.60	10:00-----	.08	.12	:05-----	.03	.60	6:01-----	.09	0	:15-----	.97	6.40
:30-----	.21	2.28	:05-----	.14	.72	:12-----	.03	0	:05-----	.10	.60	:18-----	1.38	8.20
:35-----	.37	1.92	:15-----	.18	.24	:15-----	.05	.40	:08-----	.11	.20	:20-----	1.45	2.10
:40-----	.54	2.04	:30-----	.20	.08	:20-----	.06	.12	:10-----	.18	2.10	:22-----	1.50	1.50
STORM OF JULY 26-27, 1938			:45-----	.21	.04	2:32-----	.06	0	:15-----	.28	1.20	:25-----	1.65	3.00
July 26			:50-----	.22	.12	:34-----	.07	.30	:20-----	.34	.72	:29-----	1.79	2.10
p. m.			:52-----	.23	.30	:35-----	.09	1.20	:25-----	.36	.24	:30-----	1.80	.60
8:50-----	0	-----	:55-----	.25	.40	:37-----	.12	.90	:30-----	.39	.36	:35-----	1.86	.72
9:00-----	.01	0.06	:57-----	.26	.30	:40-----	.19	1.40	:35-----	.41	.24	:40-----	1.91	.60
:04-----	.02	.15	11:00-----	.27	.20	:45-----	.25	.72	:40-----	.43	.24	:50-----	1.92	.60
11:26-----	.02	0	:02-----	.28	.30	:50-----	.26	.12	:45-----	.45	.24	:55-----	1.93	.12
:30-----	.07	.75	:05-----	.34	1.20	3:00-----	.28	.12	7:00-----	.46	.04	2:00-----	1.97	.48
:35-----	.10	.36	:08-----	.39	1.00	:30-----	.29	.02	:15-----	.47	.04	:04-----	2.01	.60
:40-----	.15	.60	:10-----	.40	.30	5:16-----	.29	0	:30-----	.48	.04	4:20-----	2.01	0
:41-----	.16	.60	:14-----	.44	.60	:20-----	.30	.15	:45-----	.49	.04	:25-----	2.05	.48
:45-----	.39	3.45	:15-----	.46	1.20	:25-----	.31	.12	8:00-----	.50	.04	:30-----	2.09	.48
:50-----	.46	.84	:16-----	.48	1.20	:28-----	.32	.20	STORM OF JUNE 9, 1939			:35-----	2.14	.60
:51-----	.47	.60	:20-----	.52	.60	:30-----	.35	.90	June 9			:40-----	2.19	.60
:55-----	.59	1.95	:30-----	.55	.18	:32-----	.38	.90	p. m.			:45-----	2.24	.60
12:00-----	.65	.72	:40-----	.56	.06	:35-----	.49	2.20	8:50-----	0	-----	:50-----	2.27	.36
July 27			:50-----	.57	.06	:40-----	.63	1.68	9:00-----	.05	0.30	5:00-----	2.28	.06
a. m.			:56-----	.58	.10	:45-----	.72	1.08	:10-----	.10	.30	:10-----	2.29	.06
12:03-----	.65	0	12:00-----	.61	.45	:50-----	.75	.36	:20-----	.12	.12	June 21		
:05-----	.67	.60	p. m.			6:00-----	.78	.18	:30-----	.13	.06	p. m.		
:10-----	.69	.24	12:05-----	.63	.24	:10-----	.80	.12	:40-----	.13	0	7:45-----	0	-----
STORM OF AUG. 16-17, 1938			:10-----	.68	.60	:20-----	.82	.12	:50-----	.14	.06	:50-----	.04	0.48
Aug. 16-17--	1.27	-----	:15-----	.71	.36	:30-----	.84	.12	10:00-----	.15	.06	:55-----	.13	1.08
STORM OF SEPT. 12-13, 1938			:20-----	.74	.36	:45-----	.86	.08	:01-----	.18	.18	8:30-----	.14	.02
Sept. 12			:25-----	.77	.36	7:00-----	.87	.04	:20-----	.28	.60	STORM OF JUNE 25, 1939		
p. m.			:30-----	.81	.48	:15-----	.88	.04	:30-----	.29	.06	June 25		
11:48-----	0	-----	:45-----	.83	.08	:30-----	.89	.04	June 12			a. m.		
:50-----	.02	0.60	1:00-----	.84	.04	:45-----	.89	.04	p. m.			1:08-----	0	-----
:52-----	.05	.90	:15-----	.87	.12	2:00-----	.90	.04	9:02-----	0	0.08	:10-----	.01	0.30
:55-----	.15	2.00	:30-----	.88	.04	:15-----	.91	.04	:10-----	.01	0.08	:15-----	.03	.24
12:00-----	.42	3.24	:45-----	.89	.04	:30-----	.92	.04	:12-----	.02	.30	:20-----	.07	.48
Sept. 13			:35-----	1.02	1.20	:50-----	.94	.04	:13-----	.04	1.20	:24-----	.10	.45
a. m.			:36-----	1.04	1.20	:55-----	.95	.04	:15-----	.04	1.20	:26-----	.13	1.20
12:05-----	.81	4.68	:40-----	1.05	.15	3:00-----	1.12	.12	:19-----	.33	3.75	:30-----	.17	.60
:10-----	.91	1.20	:45-----	1.10	.60	:05-----	1.17	.36	:20-----	.40	1.20	:35-----	.22	.60
:15-----	.96	.60	:50-----	1.11	.12	:10-----	1.18	.12	:22-----	.44	1.20	:40-----	.23	.12
:16-----	.97	.60	:55-----	1.12	.12	:40-----	1.18	0	:25-----	.45	.20	:50-----	.27	.24
:20-----	1.00	.45	3:00-----	1.14	.24	:52-----	1.20	.10	:30-----	.46	.12	:15-----	.29	.04
:30-----	1.05	.30	:05-----	1.17	.36	STORM OF MAY 22, 1939			STORM OF JUNE 12, 1939			:30-----	.31	.08
:40-----	1.09	.24	:10-----	1.18	.12	May 22			June 15			:45-----	.34	.12
:48-----	1.11	.15	:40-----	1.18	0	a. m.			a. m.			3:00-----	.37	.12
:50-----	1.12	.30	:52-----	1.20	.10	2:20-----	0	-----	3:17-----	0	-----	:15-----	.40	.12
1:00-----	1.13	.06	STORM OF APR. 9-10, 1939			:25-----	.01	0.12	20-----	.14	2.80	:30-----	.43	.12
:30-----	1.13	0	Apr. 9			:30-----	.04	.36	25-----	.51	4.44	:45-----	.48	.20
:40-----	1.14	.06	p. m.			:35-----	.05	.12	28-----	.74	4.60	4:00-----	.50	.08
STORM OF MAR. 11, 1939			10:24-----	0	-----	:40-----	.07	.24	30-----	.81	2.10	:10-----	.51	.06
Mar. 11-----	0.35	-----	:30-----	.01	0.10	:45-----	.08	.18	32-----	.89	2.40	STORM OF JULY 1, 1939		
STORM OF APR. 4, 1939			:50-----	.03	.08	:55-----	.12	.24	35-----	.91	.40	July 1		
Apr. 4			11:00-----	.04	.04	3:00-----	.22	.24	STORM OF JUNE 15, 1939			a. m.		
a. m.			:30-----	.05	.02	June 15			June 15			1:45-----	0	-----
9:18-----	0	-----	12:00-----	.06	.02	p. m.			a. m.			:50-----	.03	0.36
:25-----	.01	0.09	STORM OF MAY 26, 1939			7:52-----	0	-----	3:17-----	0	-----	:55-----	.05	.24
:35-----	.02	.06	May 26			8:00-----	.01	0.08	20-----	.14	2.80	2:00-----	.07	.24
STORM OF MAY 20, 1939			p. m.			:10-----	.05	.24	25-----	.51	4.44	:50-----	.08	.01
May 20			5:50-----	.02	0.60	:20-----	.08	.18	28-----	.74	4.60	3:00-----	.11	.18
a. m.			:10-----	.05	.24	:30-----	.12	.24	30-----	.81	2.10	:58-----	.12	.01
:10-----	.05	.24	:30-----	.12	.24	:40-----	.15	.18	32-----	.89	2.40	4:00-----	.16	1.20
:20-----	.08	.18	:40-----	.15	.18	:50-----	.17	.12	35-----	.91	.40	:10-----	.19	.18
:30-----	.12	.24	:50-----	.17	.12	9:00-----	.25	.48	:38-----	.93	.40	:20-----	.20	.06
:40-----	.15	.18	:05-----	.30	.60	:10-----	.32	.24	STORM OF JUNE 20, 1939			:26-----	.22	.20
:50-----	.17	.12	:20-----	.34	.12	:20-----	.34	.12	June 20			:38-----	.22	0
9:00-----	.25	.48	:30-----	.39	.30	:30-----	.39	.30	p. m.			:40-----	.27	1.50
:05-----	.30	.60	:34-----	.40	.15	STORM OF JUNE 1, 1939			:06-----	.09	2.70	:42-----	.37	3.00
:10-----	.32	.24	June 1			June 1			:07-----	.17	4.80			
:15-----	.34	.12	p. m.			5:50-----	0	-----	:08-----	.23	3.60	STORM OF JULY 1, 1939		
:20-----	.36	.12	5:52-----	.02	0.60	STORM OF JUNE 9, 1939			:09-----	.29	3.60	July 1		
:25-----	.38	.12	STORM OF JUNE 12, 1939			June 9			STORM OF JUNE 21, 1939			a. m.		
:30-----	.40	.12	June 12			a. m.			June 21			1:45-----	0	-----
:35-----	.42	.12	a. m.			3:17-----	0	-----	p. m.			:50-----	.03	0.36
:40-----	.44	.12	3:20-----	.14	2.80	3:25-----	.14	2.80	7:45-----	0	-----	:55-----	.05	.24
:45-----	.46	.12	3:30-----	.14	2.80	3:35-----	.14	2.80	:50-----	.04	0.48	2:00-----	.07	.24
:50-----	.48	.12	3:40-----	.14	2.80	3:45-----	.14	2.80	8:30-----	.14	.02	:50-----	.08	.01
:55-----	.50	.12	3:45-----	.14	2.80	3:50-----	.14	2.80	STORM OF JUNE 20, 1939			3:00-----	.11	.18
1:00-----	.52	.12	3:50-----	.14	2.80	3:55-----	.14	2.80	June 20			:58-----	.12	.01
:10-----	.54	.12	3:55-----	.14	2.80	4:00-----	.14	2.80	p. m.			4:00-----	.16	1.20
:15-----	.56	.12	4:00-----	.14	2.80	4:05-----	.14	2.80	1:03-----	0	-----	:10-----	.19	.18
:20-----	.58	.12	4:05-----	.14	2.80	4:10-----	.14	2.80	:06-----	.09	2.70	:20-----	.20	.06
:25-----	.60	.12	4:10-----	.14	2.80	4:15-----	.14	2.80	:07-----	.17	4.80	:26-----	.22	.20
:30-----	.62	.12	4:15-----	.14	2.80	4:20-----	.14	2.80	:08-----	.23	3.60	:38-----	.22	0
:35-----	.64	.12	4:20-----	.14	2.80	4:25-----	.14	2.80	:09-----	.29	3.60	:40-----	.27	1.50



TABLE 54.—Rainfall at station A31R for storms producing run-off, 1938-40—Continued

Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity
STORM OF JULY 1, 1939—Continued			STORM OF AUG. 15, 1939			STORM OF APR. 22, 1940—Continued			STORM OF MAY 18, 1940—Continued			STORM OF SEPT. 22-23, 1940		
July 1			Aug. 15			Apr. 22			May 18			Sept. 22		
a. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour
4:45	0.46	1.80	12:06	0		7:25	0.02	0.12	5:45	0.22	0.08	5:30	0	
:50	.48	.24	:15	.02	0.13	:30	.04	.24	6:00	.23	.04	6:30	.04	0.04
:55	.49	.12	:30	.03	.04	:40	.09	.30	:30	.24	.02	7:00	.07	.06
:58	.50	.20	:45	.04	.04	:50	.14	.30	7:00	.25	.02	:30	.08	.02
STORM OF JULY 4-5, 1939			1:00	.06	.08	:55	.16	.24	:30	.27	.04	:45	.09	.04
July 4			:30	.07	.02	8:00	.17	.12	STORM OF MAY 20, 1940			11:45	.09	0
p. m.			2:00	.08	.02	:10	.20	.18	May 20			:50	.10	.12
11:50	0		:30	.09	.02	:20	.23	.18	p. m.			12:00	.13	.18
:55	.03	0.36	3:00	.10	.02	STORM OF MAY 17, 1940			6:00	0		Sept. 23		
12:00	.09	.72	:30	.11	.02	May 17			:02	.02	0.60	a. m.		
STORM OF JULY 5			:40	.12	.02	a. m.			:05	.03	.20	12:40	.25	.18
a. m.			4:00	.12	.02	2:00	0		:15	.04	.04	1:00	.27	.06
12:05	.10	.12	STORM OF MAR. 1-2, 1940			:10	.13	.96	:35	.04	0	:20	.33	.18
:10	.12	.24	Mar. 1			:12	.17	1.20	7:10	.11	.12	:30	.35	.12
STORM OF AUG. 1, 1939			a. m.			:15	.22	1.00	:20	.12	.06	:50	.37	.06
Aug. 1			11:00	0		:20	.30	.96	:30	.14	.12	2:10	.37	0
p. m.			12:00	.01	0.01	:23	.36	1.20	:40	.16	.24	:25	.43	.24
7:49	0		p. m.			:25	.44	2.40	:45	.19	.36	:30	.44	.12
:50	.01	0.60	1:00	.02	.01	:30	.55	1.32	:50	.22	.36	3:00	.47	.06
:54	.10	1.35	2:00	.06	.04	:35	.63	.96	:55	.24	1.20	:10	.51	.24
:55	.14	2.40	3:00	.07	.01	:40	.65	.24	3:00	.26	1.20	:15	.54	.36
:56	.19	3.00	:30	.10	.06	:45	.67	.24	:35	.27	1.44	:35	.58	.12
:58	.22	.90	5:00	.10	0	:50	.68	.12	:40	.28	1.60	:40	.60	.24
STORM OF AUG. 7, 1939			:30	.12	.04	:55	.69	.12	:45	.29	1.68	:50	.62	.12
Aug. 7			6:00	.13	.02	3:00	.70	.12	:50	.30	1.80	:55	.63	.06
p. m.			7:00	.14	.01	:10	.71	.06	:55	.31	1.80	3:05	.64	.02
2:06	0		8:00	.21	.07	:20	.72	.06	:58	.32	1.80	:40	.65	.12
:10	.01	0.15	9:00	.22	.01	:25	.73	.12	:59	.33	1.80	:45	.66	.06
:20	.02	.12	10:00	.26	.04	:30	.75	.24	9:00	.34	1.80	:50	.67	.12
:24	.03	.15	11:00	.26	0	:35	.76	.24	:55	.35	1.80	:55	.68	.12
:30	.08	.50	12:00	.27	.01	:40	.77	.24	:58	.36	1.80	:58	.69	.12
:40	.10	.12	STORM OF APR. 10, 1940			:45	.78	.24	3:00	.37	1.80	:59	.70	.12
:44	.11	.15	Apr. 10			:50	.79	.24	:40	.38	1.80	3:05	.71	.12
:50	.13	.20	a. m.			:55	.80	.24	:45	.39	1.80	:45	.72	.12
:54	.14	.06	1:00	.28	.01	:58	.81	.24	:50	.40	1.80	:50	.73	.12
:55	.15	.15	2:00	.30	.02	:59	.82	.24	:55	.41	1.80	:55	.74	.12
:56	.16	.12	3:00	.30	0	4:00	.83	.24	:58	.42	1.80	:58	.75	.12
:57	.17	.12	4:00	.31	.01	:05	.84	.36	3:00	.43	1.80	:59	.76	.12
:58	.18	.12	5:00	.33	.02	:10	.85	.36	:40	.44	1.80	3:05	.77	.12
STORM OF AUG. 11, 1939			6:00	.34	.01	:15	.86	.36	:45	.45	1.80	:40	.78	.12
Aug. 11			7:00	.35	.01	:20	.87	.36	3:00	.46	1.80	:45	.79	.12
p. m.			STORM OF APR. 17, 1940			:25	.88	.36	:40	.47	1.80	:50	.80	.12
9:49	0		Apr. 17			:30	.89	.36	:45	.48	1.80	:55	.81	.12
:50	.01	0.60	a. m.			:35	.90	.36	:50	.49	1.80	:58	.82	.12
:51	.02	.60	12:15	0		:40	.91	.36	:55	.50	1.80	:59	.83	.12
:52	.09	4.20	:25	.01	0.06	:45	.92	.36	3:00	.51	1.80	3:05	.84	.12
:53	.21	7.20	:30	.02	.12	:50	.93	.36	:40	.52	1.80	:40	.85	.12
:54	.33	7.20	:35	.05	.36	:55	.94	.36	:45	.53	1.80	:45	.86	.12
:55	.42	5.40	:40	.08	.36	:58	.95	.36	:50	.54	1.80	:50	.87	.12
:56	.49	4.20	:45	.12	.24	4:00	.96	.36	:55	.55	1.80	:55	.88	.12
:57	.56	4.20	:50	.16	.24	:05	.97	.36	:58	.56	1.80	:58	.89	.12
10:00	.57	.20	:55	.17	.12	:10	.98	.36	3:00	.57	1.80	:59	.90	.12
:15	.64	.28	:59	.18	.12	:15	.99	.36	:40	.58	1.80	3:05	.91	.12
:30	.65	.04	:59	.21	.36	:20	1.00	.36	:45	.59	1.80	:40	.92	.12
STORM OF APR. 22, 1940			:20	.22	.12	:25	1.01	.36	:50	.60	1.80	:45	.93	.12
Apr. 22			:25	.24	.24	:30	1.02	.36	:55	.61	1.80	:50	.94	.12
a. m.			:30	.26	.24	:35	1.03	.36	:58	.62	1.80	:55	.95	.12
7:15	0		:35	.27	.12	:40	1.04	.36	3:00	.63	1.80	:58	.96	.12
:20	.01	0.12	:40	.28	.12	:45	1.05	.36	:40	.64	1.80	:59	.97	.12
STORM OF MAY 18, 1940			:45	.29	.06	:50	1.06	.36	:50	.65	1.80	3:05	.98	.12
May 18			:50	.30	.01	:55	1.07	.36	:55	.66	1.80	:40	.99	.12
a. m.			:55	.31		:58	1.08	.36	:58	.67	1.80	:45	1.00	.12
12:00	0		:58	.32		4:00	1.09	.36	:59	.68	1.80	:50	1.01	.12
:15	.03		:59	.33		:05	1.10	.36	3:00	.69	1.80	:55	1.02	.12
:30	.09		:59	.34		:10	1.11	.36	:40	.70	1.80	:58	1.03	.12
:45	.14		:59	.35		:15	1.12	.36	:45	.71	1.80	:59	1.04	.12
:55	.16		:59	.36		:20	1.13	.36	:50	.72	1.80	3:05	1.05	.12
:59	.17		:59	.37		:25	1.14	.36	:55	.73	1.80	:40	1.06	.12
STORM OF MAY 20, 1940			:30	.38		:30	1.15	.36	:58	.74	1.80	:45	1.07	.12
May 20			:35	.39		:35	1.16	.36	:59	.75	1.80	:50	1.08	.12
a. m.			:40	.40		:40	1.17	.36	3:00	.76	1.80	:55	1.09	.12
6:00	0		:45	.41		:45	1.18	.36	:40	.77	1.80	:58	1.10	.12
:02	.02	0.60	:50	.42		:50	1.19	.36	:45	.78	1.80	:59	1.11	.12
:05	.03	.20	:55	.43		:55	1.20	.36	:50	.79	1.80	3:05	1.12	.12
:10	.04	.04	:58	.44		:58	1.21	.36	:55	.80	1.80	:40	1.13	.12
:15	.04	.12	:59	.45		:59	1.22	.36	:58	.81	1.80	:45	1.14	.12
:20	.04	.12	:59	.46		4:00	1.23	.36	:59	.82	1.80	:50	1.15	.12
:25	.04	.12	:59	.47		:05	1.24	.36	3:00	.83	1.80	:55	1.16	.12
:30	.04	.12	:59	.48		:10	1.25	.36	:40	.84	1.80	:58	1.17	.12
:35	.04	.12	:59	.49		:15	1.26	.36	:45	.85	1.80	:59	1.18	.12
:40	.04	.12	:59	.50		:20	1.27	.36	:50	.86	1.80	3:05	1.19	.12
:45	.04	.12	:59	.51		:25	1.28	.36	:55	.87	1.80	:40	1.20	.12
STORM OF JUNE 8, 1940			:30	.52		:30	1.29	.36	:58	.88	1.80	:45	1.21	.12
June 8			:35	.53		:35	1.30	.36	:59	.89	1.80	:50	1.22	.12
a. m.			:40	.54		:40	1.31	.36	9:00	.90	1.80	:55	1.23	.12
8:11	0		:45	.55		:45	1.32	.36	:50	.91	1.80	:58	1.24	.12
:13	.04	1.20	:50	.56		:50	1.33	.36	:55	.92				



TABLE 54. Rainfall at station A31R for storms producing run-off, 1938-40—Continued

Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity
STORM OF OCT. 1-2, 1940—Continued			STORM OF OCT. 8-10, 1940—Continued			STORM OF NOV. 8-9, 1940—Continued			STORM OF NOV. 8-9, 1940—Continued			STORM OF NOV. 8-9, 1940—Continued		
Oct. 2			Oct. 10			Nov. 9			Nov. 9			Nov. 9		
a. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour
9:50	0.20	0.12	12:10	0.05	0.12	10:15	0.02	0.12	12:45	0.25	0.24	5:30	0.41	0.02
7:00	.27	.06	50	.06	.06	50	.04	.24	55	.24	.06	6:00	.42	.02
05	.20	.24	50	.09	.06	11:10	.04	0	1:05	.25	.06	30	.43	.02
15	.31	.12				15	.05	.12	1:15	.28	.18	7:00	.44	.02
12:00	.00	0				35	.13	.24	2:25	.34	.18	00:35	.44	0
p. m.			STORM OF NOV. 8-9, 1940			45	.14	.06	3:00	.32	.12	1:44	.45	.07
1:00	.32	.01				12:00	.15	.04	3:30	.33	.06	3:45	.46	.60
STORM OF OCT. 9-10, 1940			Nov. 8			Nov. 9			3:50	.34	.06	50	.40	.30
Oct. 9			p. m.			12:20	.03	.03	5:55	.35	.12	55	.52	.36
p. m.			10:30	0		25	.17	.12	2:00	.36	.12	1:00	.54	.24
11:15	0		40	.01	0.00	30	.18	.12	3:40	.37	.06	15	.55	.01
12:00	.03	0.04				35	.20	.24	4:00	.38	.06	30	.56	.44
						40	.21	.12	5:00	.40	.12	p. m.		
										.40	0	12:30	.57	.01

TABLE 55. Rainfall at station B2SR for storms producing run-off, 1939-40

Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity
STORM OF MAY 20, 1939			STORM FOR MAY 26-27, 1939			STORM OF JUNE 9, 1939—Continued			STORM OF JUNE 20, 1939			STORM OF JUNE 25, 1939		
May 20			May 26			June 9			June 20			June 25		
a. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour
1:10	0		7:41	0		9:07	0.43	0.44	1:04	0		12:54	0	
15	.04	0.48	45	.07	1.05	10	.44	.20	05	.02	1.20	35	.01	0.60
2:35	.04	0	50	.06	.24	20	.47	.18	1:06	.06	2.40	1:06	.03	.24
30	.05	.15	55	.11	.24	30	.21	.24	307	.10	2.40	1:10	.04	.06
40	.07	1.20	8:00	.13	.24	40	.22	.06	408	.12	4.20	1:15	.08	.48
44	.14	1.40	10	.10	.18	50	.23	.06	10	.14	.60	2:20	.13	.60
45	.16	.60	20	.18	.18	00:00	.24	.06	11	.16	1.20	2:23	.19	1.20
50	.18	.24	30	.24	.12	10	.25	.06	12	.19	1.80	2:25	.26	2.10
55	.19	.12	40	.24	.18	12	.28	.90	13	.24	3.00	3:30	.33	.84
3:00	.20	.12	50	.20	.30	20	.31	.23	14	.32	4.80	3:35	.36	.36
5:10	.20	0	0:00	.33	.24	30	.32	.06	15	.41	5.40	4:00	.39	.30
20	.21	.06	10	.30	.36	10:14	.33	.01	16	.44	1.80	4:45	.40	.12
28	.22	.08	20	.43	.12	20	.35	.20	18	.40	1.50	2:00	.41	.04
30	.26	1.20	30	.43	.12	30	.37	.12	20	.51	.60	3:5	.43	.08
35	.34	2.04	36	.45	.20				25	.58	.84	3:30	.44	.04
40	.50	0.92				STORM OF JUNE 12, 1939			26	.63	3.00	3:45	.46	.08
43	.64	0.00	May 27			June 12			27	.66	1.80	3:00	.40	.12
45	.68	0.20	p. m.			9:12	0		28	.60	1.80	3:15	.53	.16
47	.72	1.20	12:04	.45	0	15	.01	0.20	30	.71	.60	3:30	.55	.08
50	.74	.40	08	.47	.30	45	.02	.30	35	.78	.84	4:35	.59	.16
0:00	.77	.08	STORM FOR JUNE 1, 1939			18	.05	1.80	40	.82	.48	4:40	.61	.08
10	.78	.06	June 1			19	.09	2.40	45	.86	.48			
20	.80	.12	p. m.			20	.09	2.40	50	.90	.48	STORM OF JULY 1, 1939		
30	.82	.12	9:00	0		21	.14	3.00	55	.91	.24	July 1		
45	.85	.12	05	.03	0.36	22	.18	2.40	60	.91	0	a. m.		
7:00	.86	.04	08	.06	1.20	23	.22	2.40	65	.93	.24	1:34	0	
20	.87	.03	10	.13	0.20	25	.26	1.80	70	.97	.48	30	.02	0.20
STORM OF MAY 22, 1939			13	.16	.60	28	.27	.20	75	1.06	.12	40	.02	0
May 22			15	.16	.60	30	.31	1.20	80	1.09	1.80	44	.02	0
a. m.			20	.23	.48	35	.32	.12	85	1.12	1.80	46	.05	.90
2:18	0		25	.24	.12	40	.33	.04	90	1.14	1.20	48	.05	.15
20	.01	0.30	30	.27	.36	STORM OF JUNE 15, 1939			95	1.20	.36	50	.06	.15
23	.03	.40	35	.29	.24	June 15			100	1.21	.12	54	.06	0
25	.04	.30	40	.30	.12	a. m.			5:00	1.23	.12	56	.07	.30
30	.07	.36	45	.32	.12	10	0		STORM OF JUNE 21, 1939			58	.07	0
34	.08	.15	50	.33	.06	15	.03	1.80	June 21			59	.07	.24
35	.10	1.20	55	.34	.04	20	.08	3.00	p. m.			60	.13	.48
37	.14	1.20	60	.35	.04	21	.14	3.00	7:40	0		61	.16	.36
40	.17	.06	65	.36	.04	22	.20	3.60	8:00	.03	0.60	62	.18	.24
42	.20	.06	7:00	.36	0	23	.25	3.00		.05	.60	63	.19	.12
45	.24	.86	11:00	.37	.01	25	.32	4.20	June 21			64	.20	.12
50	.26	.24	STORM OF JUNE 9, 1939			26	.37	3.00	p. m.			65	.21	.12
55	.28	.24	June 9			27	.40	1.80	7:40	.03	0.60	66	.25	.48
3:00	.32	.48	p. m.			28	.43	1.80		.05	.60	67	.25	0
30	.32	0	8:43	0		29	.46	1.80		.09	.80	68	.20	2.40
40	.33	.06	9:00	.04	0.09	30	.53	1.80		.12	.90	69	.33	1.20
44	.34	.07		.08	.42	32	.57	1.20		.18	1.20	70	.37	.48
50	.37	.00				35	.59	.40		.22	1.20	75	.37	.48
55	.38	.12				40	.60	.12		.24	.24	8:00	.30	.24



TABLE 55.—Rainfall at station B28R for storms producing run-off, 1939-40—Continued

Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity
STORM OF JULY 4-5, 1939			STORM OF AUG. 15, 1939—Continued			STORM OF APR. 16-17, 1940—Continued			STORM OF MAY 17, 1940—Continued			STORM OF JUNE 8, 1940—Continued		
July 4			Aug. 15			Apr. 17			May 17			June 8		
p. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour
11:40	0		12:45	0.11	0.04	12:05	0.03	0.12	5:10	1.03	0.38	9:25	1.03	0.13
1:50	.01	0.06	1:50	.14	.26	1:10	.04	.12	1:15	1.09	.12	3:30	1.05	.24
3:54	.02	.15	1:20	.14	0	1:20	.06	.12	2:20	1.10	.12	3:40	1.09	.24
5:56	.05	.90	1:30	.15	.06	1:25	.07	.12	2:25	1.12	.24	3:45	1.11	.24
7:59	.06	.20	2:20	.15	0	1:30	.09	.24	3:30	1.14	.24	10:35	1.16	.06
12:00	.08	1.20	3:40	.17	.12	1:40	.13	.24	3:35	1.15	.12			
July 5			STORM OF OCT. 8, 1939			STORM OF APR. 22, 1940			STORM OF MAY 18, 1940			STORM OF JUNE 22, 1940		
a. m.			Oct. 8			Apr. 22			May 18			June 22		
12:06	.11	.30	p. m.			a. m.			a. m.			p. m.		
1:10	.12	.15	9:35	0		7:00	0		12:40	0		5:36	0	
3:30	.13	0	3:40	.06	0.72	1:10	.01	0.06	1:50	.01	0.06	5:38	.02	0.60
1:00	.13	.02	4:2	.06	0	1:15	.02	.12	2:30	.02	.06	6:00	.03	.03
STORM OF AUG. 1, 1939			STORM OF MAR. 1-2, 1940			STORM OF APR. 22, 1940			STORM OF MAY 18, 1940			STORM OF JUNE 22, 1940		
Aug. 1	0.32		Mar. 1			Apr. 22			May 18			June 22		
STORM OF AUG. 7, 1939			STORM OF MAR. 1-2, 1940			STORM OF APR. 22, 1940			STORM OF MAY 18, 1940			STORM OF JUNE 22, 1940		
Aug. 7			Mar. 1			Apr. 22			May 18			June 22		
p. m.			a. m.			a. m.			a. m.			p. m.		
2:12	0		11:00	0	0.02	7:00	0		12:40	0		5:36	0	
2:20	.01	0.07	12:00	.03	.04	1:10	.01	0.06	1:50	.01	0.06	5:38	.02	0.60
2:30	.02	.07				1:15	.02	.12	2:30	.02	.06	6:00	.03	.03
2:40	.03	.60				1:20	.06	.24	2:35	.03	.06	6:05	.03	.06
3:5	.06	.36				1:25	.07	.12	2:40	.04	.06	6:10	.04	.06
3:48	.07	.05				1:30	.09	.24	2:45	.05	.06	6:15	.05	.06
4:50	.09	.60				1:35	.11	.36	2:50	.06	.06	6:20	.06	.06
5:4	.12	.60				1:40	.13	.24	2:55	.07	.08	6:25	.07	.08
6:30	.13	0				1:45	.15	.24	3:00	.08	.08	6:30	.08	.08
7:40	.15	.12				1:50	.17	.24	3:05	.09	.08	6:35	.09	.08
8:45	.17	.24				1:55	.19	.24	3:10	.10	.02	6:40	.10	.02
9:50	.22	.72				2:00	.20	.12	3:15	.11	.02	6:45	.11	.02
10:55	.29	.72				2:05	.22	.06	3:20	.12	.06	6:50	.12	.06
11:50	.31	.24				2:10	.24	.24	3:25	.13	.06	6:5		
1:5	.32	.04				2:15	.24	.24	3:30	.14	.06	6:55	.14	.06
2:0	.33	.04				2:20	.26	.24	3:35	.15	.12	7:00	.15	.12
2:1	.35	.60				2:25	.27	.12	3:40	.16	.12	7:05	.16	.12
2:2	.36	.60							3:45	.17	.12	7:10	.17	.12
2:3	.37	.60							3:50	.18	.12	7:15	.18	.12
2:4	.38	.60							3:55	.19	.12	7:20	.19	.12
2:5	.39	.60							4:00	.20	.12	7:25	.20	.12
2:6	.40	.60							4:05	.21	.12	7:30	.21	.12
2:7	.41	.60							4:10	.22	.12	7:35	.22	.12
2:8	.42	.60							4:15	.23	.12	7:40	.23	.12
2:9	.43	.60							4:20	.24	.12	7:45	.24	.12
2:10	.44	.60							4:25	.25	.12	7:50	.25	.12
2:11	.45	.60							4:30	.26	.12	7:55	.26	.12
2:12	.46	.60							4:35	.27	.12	8:00	.27	.12
2:13	.47	.60							4:40	.28	.12	8:05	.28	.12
2:14	.48	.60							4:45	.29	.12	8:10	.29	.12
2:15	.49	.60							4:50	.30	.12	8:15	.30	.12
2:16	.50	.60							4:55	.31	.12	8:20	.31	.12
2:17	.51	.60							5:00	.32	.12	8:25	.32	.12
2:18	.52	.60							5:05	.33	.12	8:30	.33	.12
2:19	.53	.60							5:10	.34	.12	8:35	.34	.12
2:20	.54	.60							5:15	.35	.12	8:40	.35	.12
2:21	.55	.60							5:20	.36	.12	8:45	.36	.12
2:22	.56	.60							5:25	.37	.12	8:50	.37	.12
2:23	.57	.60							5:30	.38	.12	8:55	.38	.12
2:24	.58	.60							5:35	.39	.12	9:00	.39	.12
2:25	.59	.60							5:40	.40	.12	9:05	.40	.12
2:26	.60	.60							5:45	.41	.12	9:10	.41	.12
2:27	.61	.60							5:50	.42	.12	9:15	.42	.12
2:28	.62	.60							5:55	.43	.12	9:20	.43	.12
2:29	.63	.60							6:00	.44	.12	9:25	.44	.12
2:30	.64	.60							6:05	.45	.12	9:30	.45	.12
2:31	.65	.60							6:10	.46	.12	9:35	.46	.12
2:32	.66	.60							6:15	.47	.12	9:40	.47	.12
2:33	.67	.60							6:20	.48	.12	9:45	.48	.12
STORM OF AUG. 11, 1939			STORM OF APR. 9-10, 1940			STORM OF MAY 17, 1940			STORM OF MAY 20, 1940			STORM OF JUNE 2, 1940		
Aug. 11			Apr. 9			May 17			May 20			June 2		
p. m.			p. m.			a. m.			p. m.			a. m.		
9:49	0		8:35	0		1:57	0		6:02	0		8:02	0	
1:50	.02	1.20	3:40	.02	0.24	2:00	.01	0.20	6:05	.01	0.20	8:05	.01	0.04
3:51	.05	1.80	4:50	.04	.12	2:05	.04	.26	6:10	.02	.06	8:10	.02	.04
5:53	.19	4.20	5:50	.05	.06	2:10	.07	.26	6:15	.03	.04	8:15	.03	.06
7:55	.34	4.50	9:00	.05	0	2:15	.13	.72	6:20	.04	.04	8:20	.04	.06
9:58	.61	4.05	10:00	.05	0	2:20	.20	.84	6:25	.06	.06	8:25	.05	.06
11:00	.64	1.80	11:00	.06	.01	2:25	.32	1.44	6:30	.07	.06	8:30	.06	.06
1:05	.74	1.20				2:30	.43	1.32	6:35	.08	.06	8:35	.07	.06
3:10	.76	.24				2:35	.48	.60	6:40	.09	.06	8:40	.08	.06
5:15	.77	.12				2:40	.51	.36	6:45	.10	.06	8:45	.09	.01
7:20	.78	.12				2:45	.52	.12		.11		8:50	.09	0
STORM OF AUG. 15, 1939			STORM OF APR. 16-17, 1940			STORM OF MAY 17, 1940			STORM OF MAY 20, 1940			STORM OF JUNE 2, 1940		
Aug. 15			Apr. 16			May 17			May 20			June 2		
a. m.			p. m.			a. m.			p. m.			a. m.		
12:09	0		11:50	0		1:57	0		6:02	0		8:02	0	
1:10	.01	0.60	12:00	.01	0.12	2:00	.01	0.20	6:05	.01	0.20	8:05	.01	0.04
3:15	.04	.36	12:05	.02	.12	2:05	.04	.26	6:10	.02	.06	8:10	.02	.04
5:20	.07	.26	12:10	.03	.06	2:10	.07	.26	6:15	.03	.04	8:15	.03	.06
7:25	.10	.18	12:15	.04	.06	2:15	.13	.72	6:20	.04	.04	8:20	.04	.06
STORM OF AUG. 15, 1939			STORM OF APR. 16-17, 1940			STORM OF MAY 17, 1940			STORM OF MAY 20, 1940			STORM OF JUNE 2, 1940		
Aug. 15			Apr. 16			May 17			May 20			June 2		
a. m.			p. m.			a. m.			p. m.			a. m.		
12:09	0		11:50	0		1:57	0		6:02	0		8:02	0	
1:10	.01	0.60	12:00	.01	0.12	2:00	.01	0.20	6:05	.01	0.20	8:05	.01	0.04
3:15	.04	.36	12:05	.02	.12	2:05	.04	.26	6:10	.02	.06	8:10	.02	.04
5:20	.07	.26	12:10	.03	.06	2:10	.07	.26	6:15	.03	.04	8:15	.03	.06
7:25	.10	.18	12:15	.04	.06	2:15	.13	.72	6:20	.04	.04	8:20	.04	.06



TABLE 55.—Rainfall at station B28R for storms producing run-off, 1939-40—Continued

Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity
STORM OF SEPT. 22-23 1940—Continued			STORM OF SEPT. 24, 1940—Continued			STORM OF OCT. 1, 1940—Continued			STORM OF OCT. 1-2, 1940—Continued			STORM OF NOV. 8-9, 1940		
Sept. 23			Sept. 24			Oct. 1			Oct. 2			Nov. 8		
a. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour
1:15-----	0.33	0.24	1:50-----	0.09	0.24	5:30-----	0.05	0.04	1:14-----	0.09	0.45	10:30-----	0	0.24
:20-----	.34	.12	:55-----	.11	.24	6:00-----	.06	.02	4:30-----	.09	0	:35-----	.02	.36
:30-----	.35	.06	2:00-----	.12	.12	:10-----	.07	.06	:40-----	.10	.06	:40-----	.05	.06
:45-----	.36	.04	:05-----	.13	.12	:20-----	.08	.06	:50-----	.12	.12	:50-----	.06	.06
:55-----	.37	.06	:10-----	.15	.24	:30-----	.09	.06	5:00-----	.14	.12	11:00-----	.06	0
2:07-----	.37	0	:20-----	.19	.24	:45-----	.10	.04	6:15-----	.14	0	:10-----	.08	.12
:10-----	.38	.20	:25-----	.21	.24	7:00-----	.11	.04	:30-----	.17	.12	:20-----	.10	.12
:20-----	.40	.12	:28-----	.22	.20	:25-----	.12	.02	:45-----	.20	.12	:25-----	.11	.12
:30-----	.42	.12	:30-----	.25	.90	:30-----	.14	.24	:55-----	.21	.06	:30-----	.13	.24
:35-----	.43	.12	:32-----	.30	1.50	:35-----	.15	.12	7:00-----	.22	.12	:45-----	.14	.04
:50-----	.44	.04	:35-----	.35	1.00	:40-----	.16	.12	:10-----	.24	.12	12:00-----	.15	.04
:55-----	.45	.12	:40-----	.40	.60	:50-----	.17	.06	12:00-----	.24	0			
3:00-----	.47	.24	:50-----	.44	.24	8:00-----	.18	.06						
:05-----	.49	.24	3:00-----	.48	.24	9:00-----	.18	0	p. m.	.25	.01	Nov. 9		
:10-----	.51	.24	:05-----	.51	.36	:10-----	.19	.06	1:00-----			a. m.		
:15-----	.54	.36	:10-----	.54	.36	:20-----	.20	.06				12:15-----	.16	.04
:30-----	.57	.12	:15-----	.58	.48	12:00-----	.20	0				:20-----	.18	.24
:35-----	.58	.12	:20-----	.60	.24	p. m.	.21	.01				:30-----	.21	.18
:40-----	.60	.24	:30-----	.62	.12				STORM OF OCT. 9-10 1940			:40-----	.24	.18
:45-----	.61	.12	:40-----	.64	.12	Oct. 9						:45-----	.25	.12
:50-----	.62	.12	:45-----	.66	.24	p. m.			Oct. 10			:50-----	.26	.12
4:00-----	.63	.06	:50-----	.67	.12	11:30-----	0	0.04	a. m.			:55-----	.27	.06
5:00-----	.64	.01	:55-----	.68	.12	12:00-----	.01	.04	12:10-----	.03	.06	1:00-----	.28	.12
6:00-----	.65	.01	4:00-----	.69	.12				:20-----	.05	.12	:10-----	.30	.24
:30-----	.66	.02	:10-----	.70	.06	Oct. 10			:30-----	.07	.12	:15-----	.31	.12
7:00-----	.67	.02	:20-----	.71	.06				:40-----	.08	.06	:20-----	.32	.12
STORM OF SEPT. 24, 1940			STORM OF OCT. 1, 1940			STORM OF OCT. 1-2, 1940						:30-----	.33	.06
Sept. 24			Oct. 1			Oct. 1						:45-----	.34	.04
a. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour				:50-----	.35	.12
1:00-----	0	0.06	3:45-----	0	0.04	10:58-----	0	0.30				2:00-----	.36	.06
:10-----	.01	0.06	4:00-----	.01	0.04	11:00-----	.01	0				:05-----	.37	.12
:20-----	.02	.12	:10-----	.02	.06	:15-----	.01	0				:10-----	.38	.12
:30-----	.04	.12	:40-----	.02	0	:20-----	.02	.12				:15-----	.39	.12
:40-----	.06	.12	5:00-----	.03	.03	:30-----	.03	.06				:20-----	.40	.12
:45-----	.07	.12	:15-----	.04	.04	12:00-----	.04	.02				:25-----	.41	.12
						Oct. 2						:30-----	.42	.12
						a. m.	Inches	Inches per hour				:35-----	.43	.12
						12:53-----	.04	0				:40-----	.44	.12
						1:00-----	.05	.09				:45-----	.45	.12
						:10-----	.06	.06				:50-----	.46	.12

<sup>1</sup> Intensity record not obtained after 2:10 a. m.

TABLE 56.—Rainfall at station B32R for storms producing run-off, 1939-40

Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity
NO. 1 STORM OF OCT. 8, 1939			NO. 2 STORM OF OCT. 8, 1939—Continued			STORM OF MAY 17, 1940—Continued			STORM OF JUNE 8, 1940			STORM OF AUG. 4, 1940—Continued		
Oct. 8			Oct. 8			May 17			June 8			Aug. 4		
a. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour
10:15-----	0	0.04	9:35-----	0.01	0	3:25-----	0.71	0.12	8:10-----	0	2.40	8:42-----	0.02	0.60
:30-----	.01	.04	:40-----	.09	.96	:30-----	.73	.24	:15-----	.20	1.00	:45-----	.10	1.60
:45-----	.02	.04	:44-----	.09	0	:35-----	.75	.24	:18-----	.25	.90	:47-----	.17	2.10
:50-----	.03	.12	:45-----	.10	.60	:40-----	.77	.24	:20-----	.28	.90	:50-----	.22	1.00
:55-----	.04	.12	:48-----	.15	1.00	:45-----	.79	.24	:25-----	.51	2.76	:55-----	.30	.96
11:00-----	.05	.12	:50-----	.21	1.80	:50-----	.81	.24	:30-----	.61	1.20	9:00-----	.34	.48
:05-----	.07	.24	:55-----	.22	.12	4:00-----	.86	.30	:35-----	.66	.60	:05-----	.36	.24
:10-----	.11	.48	STORM OF MAY 17, 1940			:10-----	.91	.30	:40-----	.76	1.20	:30-----	.37	.02
:15-----	.13	.24				:20-----	.96	.30	:45-----	.81	.60	:45-----	.38	.04
:20-----	.16	.36				:30-----	1.01	.30	:50-----	.83	.24	STORM OF SEPT. 22-23, 1940		
:25-----	.17	.12				:40-----	1.05	.24	9:00-----	.86	.18	Sept. 22		
:30-----	.18	.12				:50-----	1.10	.30	:10-----	.89	.18	p. m.		
:35-----	.19	.12				5:00-----	1.15	.30	:20-----	.93	.24	5:30-----	0	0.04
:40-----	.20	.12				:10-----	1.20	.30	:30-----	.97	.24	:45-----	.01	.04
NO. 2 STORM OF OCT. 8, 1939						:20-----	1.22	.12	:40-----	1.01	.24	:50-----	.02	.06
Oct. 8						:30-----	1.26	.24	:45-----	1.03	.24	:10-----	.03	.06
p. m.	Inches	Inches per hour				:35-----	1.28	.24	:50-----	1.04	.12	:20-----	.04	.06
12:30-----	.20	0				:40-----	1.29	.12	10:00-----	1.05	.06	:30-----	.05	.06
1:00-----	.21	.02				6:40-----	1.29	0	:10-----	1.06	.06	:35-----	.06	.12
:30-----	.22	.02				:45-----	1.31	.24	:20-----	1.07	.06	:40-----	.07	.12
						:50-----	1.32	.12	:30-----	1.08	.06	:45-----	.08	.06
						7:00-----	1.33	.06	:45-----	1.09	.04	7:00-----	.09	.06
						:10-----	1.34	.06	STORM OF AUG. 4, 1940			:30-----	.10	.02
						:20-----	1.35	.06	Aug. 4			:45-----	.11	.04
						:25-----	1.36	.12	p. m.			11:45-----	.11	0
						:30-----	1.37	.12	8:40-----	0		:50-----	.12	.12
						:35-----	1.39	.24				12:00-----	.15	.18
						:40-----	1.41	.24						
						:50-----	1.42	.06						
						8:20-----	1.42	0						
						:30-----	1.43	.06						



TABLE 56.—Rainfall at station B32R for storms producing run-off, 1939-40—Continued

Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity
STORM OF SEPT. 22-23, 1940—Continued			STORM OF SEPT. 23-23, 1940—Continued			STORM OF SEPT. 24, 1940—Continued			STORM OF NOV. 25-26, 1940			STORM OF NOV. 25-26, 1940—Continued		
Sept. 23			Sept. 23			Sept. 24			Nov. 25			Nov. 25		
a. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour
12:10-----	0.18	0.18	3:30-----	0.62	0.08	2:00-----	0.11	0.12	12:00-----	0	-----	8:00-----	0.32	0.06
:20-----	.21	.18	:35-----	.64	.24	:05-----	.12	.12				:15-----	.35	.12
:30-----	.24	.18	:40-----	.66	.24	:10-----	.15	.36				:30-----	.38	.12
:40-----	.27	.18	:45-----	.67	.12	:15-----	.17	.24	12:30-----	.01	0.02	9:00-----	.41	.06
:50-----	.30	.18	4:00-----	.69	.08	:20-----	.19	.24	:40-----	.02	.06	:30-----	.44	.06
:55-----	.31	.12	:30-----	.70	.02	:25-----	.20	.12	:50-----	.03	.06	:45-----	.45	.04
1:00-----	.32	.12	:45-----	.71	.04	:28-----	.22	.40	1:00-----	.04	.06	10:00-----	.46	.04
:05-----	.33	.12	STORM OF SEPT. 24, 1940			:30-----	.24	.60	2:00-----	.05	.01	11:00-----	.47	.01
:10-----	.35	.24	Sept. 24			:35-----	.26	.96	:35-----	.05	0	:30-----	.48	.02
:20-----	.37	.12	a. m.			:40-----	.37	.60	:45-----	.06	.06	12:00-----	.49	.02
:30-----	.39	.12	1:05-----	0	-----	:45-----	.39	.24	:50-----	.07	.12	Nov. 26		
:40-----	.41	.12	:10-----	.01	0.12	:50-----	.41	.24	3:00-----	.09	.12	a. m.		
2:06-----	.41	0	:20-----	.03	.12	3:00-----	.46	.30	:10-----	.11	.12	12:30-----	.50	.02
:10-----	.43	.30	:30-----	.04	.06	:10-----	.51	.30	:20-----	.12	.06	1:00-----	.51	.02
:15-----	.45	.24	:40-----	.06	.12	:20-----	.56	.30	:40-----	.14	.06	2:00-----	.52	.01
:20-----	.46	.12	:50-----	.07	.12	:30-----	.58	.12	:50-----	.16	.06			
:25-----	.47	.12	:55-----	.09	.24	:40-----	.60	.12	4:00-----	.17	.01			
:30-----	.48	.12	:55-----	.10	.12	:45-----	.62	.24	:30-----	.19	.04			
:45-----	.50	.08				:50-----	.63	.12	6:00-----	.21	.04			
3:00-----	.52	.08				:55-----	.64	.12	:30-----	.23	.04			
:05-----	.55	.36				4:00-----	.65	.12	7:00-----	.26	.06			
:10-----	.58	.36				:10-----	.66	.06	:30-----	.29	.06			
:15-----	.60	.24				:20-----	.67	.06						

TABLE 57.—Rainfall at station B33R for storms producing run-off, 1939-40

Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity
STORM OF OCT. 8, 1939			STORM OF APR. 9-10, 1940			STORM OF APR. 22, 1940			STORM OF MAY 17, 1940—Continued			STORM OF MAY 18, 1940—Continued		
Oct. 8			Apr. 9			Apr. 22			May 17			May 18		
p. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour
9:40-----	0	-----	8:30-----	0	-----	7:15-----	0	-----	2:40-----	0.64	0.72	1:30-----	0.03	0.06
:45-----	.05	0.60	:40-----	.01	0.06	:20-----	.01	0.12	:45-----	.67	.36	:40-----	.04	.06
:49-----	.06	.15	:50-----	.02	.06	:25-----	.03	.24	:50-----	.68	.12	:50-----	.05	.06
:50-----	.07	.60	9:00-----	.03	.06	:30-----	.06	.36	:55-----	.69	.12	2:00-----	.07	.12
:52-----	.08	.30	Apr. 10			:35-----	.10	.48	3:00-----	.70	.12	3:00-----	.09	.02
:55-----	.16	1.60	a. m.			:40-----	.12	.24	:10-----	.71	.06	4:00-----	.11	.02
10:00-----	.18	.24	1:20-----	.03	0	:50-----	.16	.24	:20-----	.72	.06	:15-----	.12	.04
STORM OF MAR. 1-2, 1940			:30-----	.04	.06	8:00-----	.20	.24	:30-----	.75	.18	:30-----	.13	.04
Mar. 1			:50-----	.04	0	:05-----	.21	.12	:40-----	.78	.18	:40-----	.15	.12
a. m.			2:00-----	.05	.06	:10-----	.22	.12	:50-----	.81	.18	:50-----	.17	.12
11:30-----	0	-----	STORM OF APR. 17, 1940			:15-----	.23	.12	:55-----	.83	.24	5:00-----	.18	.06
12:00-----	.02	0.04	Apr. 17			:20-----	.25	.24	4:00-----	.85	.24	:30-----	.21	.06
			12:05-----	0	-----	:25-----	.26	.12	:05-----	.88	.36	6:00-----	.24	.06
12:30-----	.04	.04	a. m.			:35-----	.27	.06	:10-----	.90	.24	:30-----	.25	.02
1:00-----	.06	.04	1:10-----	.01	0.12	STORM OF MAY 17, 1940			:15-----	.91	.12	7:00-----	.26	.02
:30-----	.07	.02	:15-----	.02	.12	May 17			:20-----	.93	.24	:30-----	.27	.02
:30-----	.07	0	:20-----	.03	.12	3:00-----	.27	0	:30-----	.98	.30	STORM OF MAY 20, 1940		
2:30-----	.08	.02	:25-----	.04	.12	:05-----	.28	.12	:40-----	1.03	.30	May 20		
3:00-----	.08	.02	:30-----	.06	.24	:10-----	.29	.12	:50-----	1.08	.30	p. m.		
:30-----	.11	.06	:40-----	.09	.36	:20-----	.29	0	5:00-----	1.13	.30	6:00-----	0	-----
5:00-----	.11	0	:50-----	.11	.24	4:00-----	.30	.02	:10-----	1.18	.30	:05-----	.02	0.24
:30-----	.13	.04	:55-----	.13	.24	7:40-----	.30	0	:20-----	1.23	.30	:15-----	.03	.06
6:00-----	.13	0	:55-----	.15	.24	:45-----	.31	.12	:30-----	1.25	.12	:30-----	.04	.04
:30-----	.14	.02	1:00-----	.16	.12	:50-----	.32	.12	:40-----	1.27	.12	:40-----	.05	.06
7:00-----	.16	.04	:05-----	.17	.12	:55-----	.33	.12	6:40-----	1.27	0	:50-----	.07	.12
:30-----	.19	.06	:10-----	.18	.12	STORM OF MAY 18, 1940			7:00-----	1.30	.08	7:00-----	.09	.12
8:00-----	.21	.04	:15-----	.20	.24	May 18			:15-----	1.31	.04	:10-----	.10	.06
9:00-----	.22	.01	:20-----	.22	.24	a. m.			:30-----	1.33	.08	:20-----	.11	.06
10:00-----	.24	.02	:25-----	.23	.12	1:55-----	0	-----	:40-----	1.36	.18	:30-----	.13	.12
11:00-----	.25	.01	:30-----	.24	.12	2:00-----	.02	0.24	:50-----	1.39	.18	:40-----	.16	.36
12:00-----	.26	.01	:35-----	.25	.12	:05-----	.05	.36	8:20-----	1.39	0	:40-----	.18	.24
			:40-----	.26	.06	:10-----	.12	1.40	:30-----	1.40	.06	:45-----	.20	.24
			:45-----	.27	.06	:15-----	.17	1.50	:40-----	1.41	.06	:50-----	.21	.12
			:50-----	.27	.06	:20-----	.24	1.40	STORM OF MAY 18, 1940			STORM OF JUNE 8, 1940		
			:55-----	.28	.06	:25-----	.31	2.10	May 18			June 8		
			2:00-----	.28	0	:30-----	.43	1.44	a. m.			p. m.		
			3:30-----	.28	.01	:35-----	.49	.72	1:00-----	0	-----	8:09-----	0	-----
			4:00-----	.29	.02		.54	.60	:10-----	.01	0.06	:10-----	.01	0.60
			5:00-----	.30	.01		.58	.48	:20-----	.02	.06			



TABLE 57.—Rainfall at station B33R for storms producing run-off, 1939-40—Continued

Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity
STORM OF JUNE 8, 1940—Continued			STORM OF AUG. 4, 1940			STORM OF SEPT. 22-23, 1940—Continued			STORM OF OCT. 1, 1940—Continued			STORM OF OCT. 9-10, 1940—Continued		
June 8		Inches per hour	Aug. 4		Inches per hour	Sept. 23		Inches per hour	Oct. 1		Inches per hour	Oct. 9		Inches per hour
p. m.	Inches		p. m.	Inches		a. m.	Inches		a. m.	Inches		p. m.	Inches	
8:12	0.11	3.00	8:38	0	0.90	2:15	0.39	0.24	5:00	0.03	0.04	11:45	0.02	0.04
:15	.25	2.80	:40	.03		:20	.40	.12	:15	.04	.04	12:00	.03	.04
:16	.28	1.80	:43	.10	1.40	:25	.41	.12	:30	.05	.04			
:17	.31	1.80	:45	.20	3.00	:30	.42	.12	6:00	.06	.02	Oct. 10		
:18	.34	1.80	:46	.25	3.00	:40	.43	.06	:15	.07	.04	a. m.		
:19	.35	.60	:48	.33	2.40	:50	.44	.06	:30	.08	.04	12:10	.04	.06
:20	.37	1.20	:50	.37	1.20	3:00	.45	.06	:40	.09	.06	:20	.06	.12
:21	.39	1.20	:52	.40	.90	:05	.48	.36	:50	.10	.06	:30	.08	.12
:22	.41	1.20	:55	.42	.40	:10	.50	.24	7:00	.11	.06	:40	.09	.06
:23	.45	2.40	9:00	.43	.12	:15	.53	.36	:15	.12	.04			
:24	.47	1.20	:05	.44	.12	:20	.54	.12	:30	.13	.04			
:25	.51	2.40	:45	.45	.01	:25	.55	.12	:35	.15	.24			
:26	.54	1.80				:30	.56	.12	:40	.16	.12			
:27	.56	1.20	STORM OF AUG. 12, 1940			:35	.57	.12	:45	.17	.06			
:28	.59	1.80	Aug. 12			:40	.58	.12	8:00	.18	.06	Nov. 8		
:29	.61	1.20	a. m.			:45	.60	.24	:10	.19	.06	p. m.		
:30	.63	1.20	6:30	0		:50	.61	.12	:30	.20	.02	10:35	0	
:31	.65	1.20	:45	.01	0.04	4:00	.62	.06	9:00	.20	0	:40	.02	0.24
:32	.67	1.20	7:00	.03	.08	:30	.63	.02	:30	.20	0	:45	.04	.24
:33	.69	1.20	:15	.04	.04	:45	.64	.04	11:00	.20	.02	:50	.05	.12
:34	.70	.60	8:00	.05	.04	STORM OF SEPT. 24, 1940			12:00	.21	.01	11:00	.06	.06
:35	.71	.60	a. m.			Sept. 24			Oct. 1			:10	.06	0
:40	.77	.72	6:30	0		1:05	0		10:30	0		:15	.07	.12
:43	.81	.80	:45	.01	0.04	:10	.01	0.12	:40	.01	0.06	:20	.08	.12
:45	.82	.30	7:00	.03	.08	:15	.04	.36	:40	.01	0	:25	.10	.24
:50	.83	.12	:15	.04	.04	:20	.05	.12	11:00	.01	0	:30	.11	.12
9:00	.86	.18	:30	.05	.04	:30	.06	.06	:02	.03	.60	:35	.12	.12
:10	.90	.24	:45	.06	.02	:35	.07	.12	:05	.04	.20	:40	.13	.12
:20	.92	.12	p. m.			:40	.08	.12	:15	.04	0	:45	.14	.03
:30	.96	.24	1:13	.06	0	:45	.09	.12	:20	.05	.12	Nov. 9		
:40	1.00	.24	:15	.11	1.50	:50	.11	.24	:25	.06	.12	a. m.		
:45	1.03	.36	:27	.33	.30	:55	.13	.24	12:35	.06	0	12:20	.15	.03
:50	1.04	.12	STORM OF SEPT. 22-23, 1940			2:00	.15	.24	Oct. 2			:30	.18	.18
10:00	1.05	.06	Sept. 22			:02	.18	.90	a. m.			:40	.21	.18
:30	1.08	.06	p. m.			:05	.21	.60	1:00	.07	.12	:45	.23	.24
11:00	1.09	.02	5:30	0		:10	.23	.24	1:00	.08	.06	:55	.24	.06
12:00	1.10	.01	6:00	.01	0.02	:15	.25	.24	:15	.09	.12	1:05	.25	.06
STORM OF JUNE 22, 1940			:30	.04	.06	:20	.27	.24	:20	.10	.12	:10	.26	.12
June 22			7:00	.07	.06	:25	.29	.24	:25	.12	.06	:15	.28	.24
p. m.			:30	.08	.02	:27	.33	1.20	:30	.12	.06	:20	.29	.12
5:40	0		:45	.09	.04	:30	.41	1.60	:35	.11	.06	:25	.30	.12
6:40	.01	0.01	11:40	.10	0	:35	.51	1.20	:40	.11	0	:30	.31	.12
:45	.18	2.04	:50	.11	.06	:38	.54	.60	:50	.12	.06	:35	.32	.12
:50	.21	.36	:55	.12	.12	:40	.55	.30	5:00	.13	.06	:45	.33	.06
STORM OF JULY 27, 1940			12:00	.12	.12	:50	.59	.24	:05	.14	.12	2:00	.34	.04
July 27			Sept. 23			3:00	.63	.24	6:15	.14	0	:05	.35	.12
a. m.			a. m.			:10	.67	.24	:20	.15	.12	:10	.36	.12
2:15	0		12:10	.15	.18	:20	.71	.24	:25	.17	.12	:15	.37	.12
:18	.04	0.80	:20	.18	.18	:25	.73	.24	:30	.18	.06	:20	.38	.12
:20	.05	.30	:30	.21	.18	:30	.74	.12	:35	.19	.06	:25	.40	.24
:23	.05	0	:40	.24	.18	:40	.76	.12	:45	.20	.12	:30	.41	.12
:25	.07	.60	:45	.25	.12	:50	.78	.12	:50	.21	.06	:35	.42	.02
:30	.14	.84	:50	.26	.12	4:00	.80	.12	7:00	.22	.12	3:00	.42	0
:35	.15	.12	1:00	.27	.06	:10	.81	.06	:05	.23	.12	5:30	.43	.01
:40	.16	.12	:10	.29	.12	:20	.82	.06	:10	.23	.12	6:30	.44	.01
3:10	.16	0	:20	.31	.12	STORM OF OCT. 1, 1940			:15	.24	.12	8:00	.44	.01
:15	.17	.12	:30	.33	.12	Oct. 1			:30	.25	.04	:30	.45	.02
:20	.18	.12	:40	.34	.06	a. m.						10:43	.46	.01
:25	.19	.12	:50	.35	.06	3:30	0		Oct. 9			:45	.47	.30
STORM OF OCT. 9-10, 1940—Continued			2:00	.36	.06	4:00	.01	0.02	p. m.			:50	.50	.36
			:07	.36	0	4:15	.02	.04	11:15	0		:55	.51	.12
			:10	.37	.20	:45	.02	0	:30	.01	0.04	11:00	.53	.24
						STORM OF OCT. 1, 1940						:05	.54	.12
						Oct. 1						:15	.55	.06
						a. m.						12:00	.55	0
						3:30	0							
						4:00	.01	0.02						
						4:15	.02	.04						
						:45	.02	0						



TABLE 58.—Rainfall at station B36R for storms producing run-off, 1939-40

Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity
STORM OF MAY 20, 1939			STORM OF JUNE 9-10, 1939			STORM OF JUNE 20, 1939—Continued			STORM OF JULY 4-5, 1939			STORM OF AUG. 11, 1939—Continued			STORM OF AUG. 15, 1939		
May 20			June 9			June 20			July 4			Aug. 11					
a. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour			
1:05-----	0		8:48-----	0		1:45-----	1.11	0.48	11:50-----	0		10:05-----	0.71	0.60			
:10-----	.01	0.12	:50-----	.02	0.60	:50-----	1.13	.24	:55-----	.06	0.72	:08-----	.73	.40			
:15-----	.04	.36	:55-----	.04	.24	2:00-----	1.15	.12	12:00-----	.07	.12	:10-----	.74	.30			
2:35-----	.04	0	9:00-----	.06	.24	4:16-----	1.15	0				:15-----	.76	.24			
:40-----	.09	.60	:05-----	.09	.36	:20-----	1.18	.45	July 5			:20-----	.77	.12			
:45-----	.17	.96	:10-----	.12	.36	:23-----	1.20	.40	a. m.								
:50-----	.18	.12	:20-----	.15	.18	:25-----	1.24	1.20	12:05-----	.11	.48						
:55-----	.19	.12	:30-----	.17	.12	:30-----	1.32	.96	:10-----	.12	.12						
5:15-----	.19	0	:40-----	.18	.06	:35-----	1.34	.24	:30-----	.12	0						
:28-----	.21	.14	:50-----	.19	.06	:40-----	1.42	.96	:40-----	.13	.06						
:30-----	.23	.60	10:00-----	.20	.06	:45-----	1.45	.36									
:35-----	.42	2.23	:08-----	.21	.08	:50-----	1.47	.24									
:36-----	.46	2.40	:10-----	.24	.90	5:00-----	1.49	.12									
:40-----	.57	1.65	:20-----	.31	.36												
:42-----	.63	1.80	11:15-----	.31	0												
:45-----	.68	1.00	:20-----	.35	.48												
:50-----	.71	.36	:30-----	.37	.12												
6:00-----	.74	.18	:40-----	.38	.06												
:10-----	.76	.12	June 10														
:20-----	.78	.12	a. m.														
:30-----	.81	.18	12:40-----	.38	0												
:40-----	.83	.12	:50-----	.39	.06												
:50-----	.84	.06															
7:20-----	.86	.04															
STORM OF MAY 22, 1939			STORM OF JUNE 12, 1939			STORM OF JUNE 21, 1939			STORM OF AUG. 1, 1939			STORM OF OCT. 8, 1939			STORM OF MAR. 1-2, 1940		
May 22			June 12			June 21			Aug. 1			Oct. 8			Mar. 1		
a. m.			p. m.			p. m.			p. m.			p. m.			a. m.		
2:22-----	0		9:10-----	0		7:40-----	0		7:45-----	0		9:34-----	0		11:30-----	0	
:25-----	.01	0.20	:16-----	.02	0.20	:41-----	.01	0.60	:50-----	.13	1.56	:35-----	.01	0.60	12:00-----	.02	0.04
:30-----	.04	.36	:18-----	.10	2.40	:42-----	.02	.60	:55-----	.28	1.80	:40-----	.06	.60			
:35-----	.07	.36	:20-----	.19	2.70	:44-----	.04	.60	:58-----	.39	2.20	:44-----	.07	.15			
:40-----	.09	.24	:22-----	.28	2.70	:46-----	.06	.60	:59-----	.42	1.80	:45-----	.08	.60			
:45-----	.16	.84	:24-----	.33	1.50	:48-----	.10	.60	8:00-----	.43	.60	:48-----	.13	1.00			
:50-----	.23	.84	:25-----	.34	.60	:50-----	.14	1.20	:05-----	.44	.12	:50-----	.17	1.20			
:55-----	.28	.60	:40-----	.37	.12	:52-----	.18	1.20				10:00-----	.18	.06			
3:00-----	.29	.12				:54-----	.20	.60									
:05-----	.32	.36				:58-----	.22	.60									
:10-----	.34	.24				8:00-----	.23	.30									
:35-----	.34	0				:15-----	.24	.04									
:50-----	.35	.04															
:55-----	.37	.24															
4:00-----	.39	.24															
STORM OF MAY 26, 1939			STORM OF JUNE 15, 1939			STORM OF JUNE 25, 1939			STORM OF AUG. 7, 1939			STORM OF MAR. 2, 1940			STORM OF APR. 9-10, 1940		
May 26			June 15			June 25			Aug. 7			Mar. 2			Apr. 9		
p. m.			a. m.			a. m.			p. m.			a. m.			p. m.		
7:40-----	0		3:19-----	0		12:50-----	0		12:14-----	0		1:00-----	.34	.01	8:35-----	0	
:45-----	.05	0.60	:20-----	.06	3.60	:55-----	.01	0.12	:30-----	.01	0.04	2:00-----	.35	.01	:40-----	.01	0.12
:50-----	.07	.24	:22-----	.19	3.90	1:00-----	.02	.12	1:00-----	.02	.02	3:00-----	.35	0	:45-----	.02	.12
:55-----	.08	.12	:24-----	.35	4.80	:10-----	.03	.06	:50-----	.02	0	4:00-----	.36	.01			
8:00-----	.11	.36	:25-----	.42	4.20	:15-----	.05	.24	2:00-----	.03	.06	5:00-----	.37	.01			
:05-----	.13	.24	:26-----	.46	2.40	:20-----	.14	1.08	:30-----	.04	.02	6:00-----	.37	0			
:10-----	.15	.24	:27-----	.49	1.80	:22-----	.21	2.10	:35-----	.08	.48	7:00-----	.38	.01			
:15-----	.16	.12	:28-----	.52	1.80	:25-----	.28	1.40	:40-----	.09	.12	8:00-----	.39	.02			
:30-----	.20	.16	:29-----	.55	1.80	:30-----	.32	.48	:45-----	.10	.12	9:00-----	.40	.02			
:45-----	.24	.16	:30-----	.58	1.80	:35-----	.35	.36	:50-----	.11	.12	10:00-----	.41	.02			
9:00-----	.33	.36	:32-----	.64	1.80	:40-----	.37	.24	:55-----	.14	.36	11:00-----	.42	.04			
:15-----	.38	.20	:35-----	.68	.80	:45-----	.38	.12	3:00-----	.15	.12						
:30-----	.41	.12	:40-----	.70	.24	:50-----	.41	.12	4:30-----	.17	.24						
:35-----	.43	.24				:55-----	.43	.08	:40-----	.18	.12						
:39-----	.44	.15				2:00-----	.45	.08	:45-----	.19	.12						
STORM OF JUNE 1, 1939			STORM OF JUNE 20, 1939			STORM OF JULY 1, 1939			STORM OF AUG. 11, 1939			STORM OF APR. 9-10, 1940			STORM OF APR. 9-10, 1940		
June 1			June 20			July 1			Aug. 11			Apr. 9			Apr. 10		
p. m.			p. m.			a. m.			p. m.			a. m.			a. m.		
6:00-----	0		1:04-----	0		1:34-----	0		9:51-----	0		1:25-----	.02	0	1:25-----	.02	0
:05-----	.04	0.48	:05-----	.02	1.20	:35-----	.01	0.60	:52-----	.01	0.60	:30-----	.03	.12	:30-----	.03	.12
:08-----	.12	1.60	:06-----	.05	1.80	:45-----	.03	.12	:53-----	.03	1.20	:35-----	.04	.12	:35-----	.04	.12
:10-----	.16	1.20	:07-----	.08	1.80	:55-----	.06	.18	:54-----	.08	3.00	:50-----	.04	0	:50-----	.04	0
:15-----	.24	.96	:10-----	.12	.80	2:53-----	.06	0	:55-----	.14	3.60	:55-----	.05	.06			
:20-----	.27	.36	:12-----	.16	1.20	:56-----	.08	.4	:56-----	.22	4.80						
:25-----	.30	.36	:15-----	.41	5.00	3:55-----	.08	0	:57-----	.33	6.60						
:30-----	.33	.36	:16-----	.49	4.80	4:00-----	.11	.36	:58-----	.44	6.60						
:35-----	.36	.36	:17-----	.53	2.40	:05-----	.15	.48	:59-----	.53	5.40						
:40-----	.38	.24	:18-----	.56	1.80	:10-----	.18	.36	10:00-----	.57	2.40						
:45-----	.39	.12	:20-----	.60	1.20	:20-----	.21	.18	:01-----	.64	4.20						
7:00-----	.41	.08	:22-----	.64	1.20	:30-----	.21	0	:02-----	.67	1.80						
:15-----	.42	.04	:24-----	.69	1.50	:40-----	.22	.12	:04-----	.70	.90						
:30-----	.43	.04	:25-----	.74	3.00	:44-----	.27	.75									
:45-----	.44	.04	:26-----	.80	3.60	:45-----	.30	1.80									
8:00-----	.46	.08	:27-----	.86	3.60	:48-----	.35	1.00									
			:28-----	.89	1.80	:50-----	.38	.90									
			:30-----	.91	.60	:55-----	.44	.72									
			:35-----	.96	.60	5:00-----	.46	.24									
			:37-----	.99	.90												
			:38-----	1.02	1.80												
			:40-----	1.07	1.50												



TABLE 58.—Rainfall at station B36R for storms producing run-off, 1939-40—Continued

Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity
STORM OF APR. 17, 1940			STORM OF MAY 17, 1940—Continued			STORM OF JUNE 8, 1940—Continued			STORM OF SEPT. 22-23, 1940—Continued			STORM OF OCT. 1-2, 1940—Continued		
Apr. 17			May 17			June 8			Sept. 23			Oct. 2		
a. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour
12:04	0		4:55	1.25	0.36	9:15	0.91	0.18	1:30	0.38	0.12	12:55	0.01	0
:05	.01	0.30	5:00	1.28	.36	:25	.94	.18	:40	.39	.06	1:00	.03	.24
:10	.02	.12	:05	1.31	.36	:30	.97	.36	:50	.40	.06	:12	.04	.05
:11	.03	.60	:10	1.33	.24	:35	.99	.24	2:10	.40	0	:15	.07	.60
:15	.04	.15	:15	1.35	.24	:40	1.01	.24	:15	.42	.24	:20	.08	.12
:25	.05	.06	:20	1.36	.12	:45	1.03	.24	:20	.44	.24	4:40	.08	0
:30	.07	.24	:30	1.38	.12	:50	1.04	.12	:25	.45	.12	:50	.09	.06
:35	.10	.36	:40	1.40	.12	10:00	1.05	.06	:30	.46	.12	5:00	.10	.06
:40	.12	.24	:50	1.41	.06	:10	1.06	.06	:40	.47	.06	6:15	.10	0
:50	.16	.24	6:40	1.41	0	:20	1.07	.06	:50	.48	.06	:20	.12	.24
1:00	.20	.24	:50	1.43	.12	:30	1.08	.06	:55	.49	.12	:25	.13	.12
:05	.21	.12	7:00	1.45	.12	STORM OF JUNE 22, 1940			3:00	.50	.12	:30	.14	.12
:10	.23	.24	:15	1.45	0	June 22			:05	.53	.36	:40	.15	.06
:15	.24	.12	:20	1.46	.12	p. m.			:10	.55	.24	:50	.17	.12
:20	.26	.24	:25	1.47	.12	5:40	0		:15	.58	.36	7:00	.19	.12
:25	.28	.24	:30	1.48	.12	6:35	.01	0.01	:20	.60	.24	:10	.21	.12
:30	.29	.12	:35	1.50	.24	:40	.02	.12	:30	.62	.12	12:00	.21	0
:35	.30	.12	:40	1.52	.24	:45	.17	1.80	:40	.64	.12	p. m.		
:45	.31	.06	:45	1.53	.12	:48	.20	.60	:50	.66	.12	1:00	.22	.01
4:00	.31	0	:50	1.54	.12	:50	.21	.30	4:00	.67	.06			
5:00	.32	.01	8:20	1.54	0	STORM OF JULY 27, 1940			:30	.68	.02			
6:00	.32	0	:35	1.56	.08	July 27			:45	.69	.04			
7:00	.33	.01	STORM OF MAY 18, 1940			a. m.			STORM OF SEPT. 24, 1940					
STORM OF APR. 22, 1940			May 18			2:15	0		Sept. 24					
Apr. 22			a. m.			:20	.03	0.36	a. m.					
7:23	0		1:00	0		:23	.03	0	1:05	0				
:25	.01	0.30	:10	.01	0.06	:25	.04	.30	:15	.01	0.06			
:30	.04	.36	:20	.02	.06	:30	.11	1.40	:20	.02	.12			
:35	.07	.36	:30	.03	.06	:35	.14	.24	:30	.03	.06			
:40	.10	.36	:40	.05	.12	3:10	.14	0	:40	.04	.06			
:45	.12	.24	:50	.07	.12	:15	.15	.12	:45	.05	.12			
:50	.14	.24	2:00	.09	.12	:20	.16	.12	:50	.06	.12			
:55	.16	.24	3:30	.09	0	STORM OF AUG. 12, 1940			:55	.08	.24			
8:00	.17	.12	:45	.10	.04	Aug. 12			2:00	.09	.12			
:05	.19	.24	4:00	.11	.04	a. m.			:03	.10	.20			
:10	.20	.12	:15	.12	.04	6:30	0		:05	.11	.30			
:15	.22	.24	:30	.13	.04	:35	.01	0.12	:10	.15	.48			
:20	.23	.12	:40	.15	.12	:45	.02	.06	:15	.17	.24			
:25	.25	.24	:50	.17	.12	7:00	.03	.04	:20	.19	.24			
			5:00	.19	.12	:15	.04	.04	:25	.20	.12			
			:10	.20	.06	:20	.06	.08	:30	.24	.90			
			:20	.22	.12	:30	.07	.04	:35	.27	.90			
			:30	.23	.06	:45	.08	.04	:40	.30	.60			
			:45	.25	.08	8:00	.08	.04	:45	.34	.48			
			6:00	.26	.04	STORM OF MAY 20, 1940			:50	.38	.24			
			:30	.27	.02	May 20			3:00	.42	.24			
			:45	.28	.04	p. m.			:40	.46	.24			
			7:00	.29	.04	6:00	.26	.04	:50	.52	.24			
			STORM OF MAY 17, 1940			:45	.28	.04	4:00	.57	.12			
			May 17			7:00	.29	.04	:50	.59	.12			
			a. m.			STORM OF JUNE 8, 1940			:10	.60	.06			
			2:00	0		June 8			:20	.61	.06			
			:05	.02	0.24	p. m.			Oct. 1					
			:09	.06	.60	8:10	0		a. m.					
			:10	.10	2.40	:13	.10	2.00	3:45	0				
			:13	.22	2.40	:15	.19	2.70	4:00	.01	0.04			
			:15	.34	3.60	:20	.29	1.20	:30	.01	0			
			:20	.55	2.52	:25	.49	2.40	5:00	.02	.02			
			:25	.65	1.20	:30	.56	2.10	:10	.03	.06			
			:30	.71	.72	:35	.62	1.20	:20	.04	.06			
			:35	.75	.48	:40	.67	1.00	:30	.05	.06			
			:40	.78	.36	:45	.69	.60	:45	.06	.04			
			:45	.80	.24	:50	.77	.96	6:00	.07	.04			
			:50	.81	.12	STORM OF JUNE 8, 1940			:30	.10	.06			
			3:00	.82	.06	June 8			7:00	.13	.06			
			:10	.83	.06	p. m.			:15	.14	.04			
			:15	.84	.12	8:10	0		:25	.15	.06			
			:20	.85	.12	:13	.10	2.00	:30	.16	.12			
			:25	.86	.12	:15	.19	2.70	:35	.18	.12			
			:30	.88	.24	:20	.29	1.20	:40	.19	.12			
			:35	.90	.24	:25	.49	2.40	:45	.20	.12			
			:40	.92	.24	:30	.56	2.10	:50	.21	.0			
			:45	.94	.24	:35	.62	1.20	:55	.22	.04			
			:50	.96	.24	:40	.67	1.00	10:00	.23	.02			
			:55	.98	.24	:45	.69	.60	11:00	.24	.01			
			4:00	1.01	.36	:50	.77	.96	STORM OF OCT. 1-2, 1940					
			:05	1.04	.36	9:05	.88	.18	Oct. 1					
			:10	1.06	.24	STORM OF JUNE 8, 1940			p. m.					
			:20	1.10	.24	June 8			11:20	0				
			:30	1.14	.24	p. m.			:30	.01	0.06			
			:40	1.18	.24	8:10	0							
			:50	1.22	.24	:13	.10	2.00						
						:15	.19	2.70						
						:20	.29	1.20						
						:25	.49	2.40						
						:30	.56	2.10						
						:35	.62	1.20						
						:40	.67	1.00						
						:45	.69	.60						
						:50	.77	.96						
						:55	.81	.80						
						:58	.82	.30						
						:59	.83	.18						
						:59	.84	.18						
						:59	.85	.18						
						:59	.86	.18						
						:59	.87	.18						
						:59	.88	.18						
						:59	.89	.18						
						:59	.90	.18						
						:59	.91	.18						
						:59	.92	.18						
						:59	.93	.18						
						:59	.94	.18						
						:59	.95	.18						
						:59	.96	.18						
						:59	.97	.18						
						:59	.98	.18						
						:59	.99	.18						
						:59	1.00	.18						
						:59	1.01	.18						
						:59	1.02	.18						
						:59	1.03	.18						
						:59	1.04	.18						
						:59	1.05	.18						
						:59	1.06	.18						
						:59	1.07	.18						
						:59	1.08	.18						
						:59	1.09	.18						
						:59	1.10	.18						
						:59	1.11	.18						
						:59	1.12	.18						
						:59	1.13	.18						
						:59	1.14	.18						
						:59	1.15	.18						
						:59	1.16	.18						
						:59	1.17	.18						
						:59	1.18	.18						
						:59	1.19	.18						
						:59	1.20	.18						
						:59	1.21	.18						
						:59	1.22	.18						
						:59	1.23	.18						
						:59	1.24	.18						
						:59	1.25	.18						
						:59	1.26	.18						
						:59	1.27	.18						
						:59	1.28	.18						
						:59	1.29	.18						
						:59	1.30	.18						
						:59	1.31	.18						
						:59	1.32	.18						
						:59	1.33	.18						
						:59	1.34	.18						
						:59	1.35	.18						
						:59	1.36	.18						
						:59	1.37	.18						
						:59	1.38	.18						
						:59	1.39	.18						
						:59	1.40	.18						
						:59	1.41	.18						
						:59	1.42	.18						
						:59	1.43	.18						
						:59	1.44	.18						
						:59	1.45	.18						
						:59	1.46	.18						
						:59	1.47	.18						
						:59	1.48	.18						
						:59	1.49	.18						
						:59	1.50	.18						
						:59	1.51	.18						
						:59	1.52	.18						
						:59	1.53	.18						



TABLE 59.—Rainfall at station B38R (meteorological station) for all storms, Apr. 10, 1939 to Dec. 31, 1940

Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity
STORM OF APR. 14-15, 1939			STORM OF MAY 20, 1939—Continued			STORM OF JUNE 1, 1939—Continued			STORM OF JUNE 15, 1939—Continued			STORM OF JULY 1, 1939		
Apr. 14			May 20			June 1			June 15			July 1		
p. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour
10:20	0		2:40	0.03	0	6:45	0.38	0.16	3:21	0.11	3.60	1:35	0	
30	.01	0.06	43	.08	1.00	7:00	.40	.08	22	.18	4.20	43	.01	0.07
35	.04	.36	45	.10	0.60	15	.42	.08	23	.26	4.80	45	.04	.90
40	.07	.36	50	.12	.24	30	.43	.04	24	.32	3.60	50	.06	.24
50	.10	.18	3:00	.14	.12	45	.44	.04	25	.38	3.60	2:00	.08	.12
55	.11	.12	5:22	.14	0	50	.45	.12	26	.43	3.00	55	.08	0
Apr. 15			28	.15	.12	STORM OF JUNE 8, 1939			27	.47	2.40	3:00	.09	.12
a. m.			30	.19	1.20	June 8			28	.51	2.40	55	.09	0
1:15	.11	0	31	.23	2.40	p. m.			30	.57	1.80	4:00	.10	.12
30	.13	.08	32	.27	2.40	8:35			32	.61	1.20	50	.12	.24
STORM OF APR. 15, 1939			33	.31	2.40	0			35	.64	.60	10	.16	.48
Apr. 15			34	.35	2.40	40			40	.66	.20	15	.19	.36
a. m.			35	.38	1.80	43			STORM OF JUNE 20, 1939			25	.20	.06
11:30	0		36	.40	1.20	45			June 20			35	.21	.06
12:00	.01	0.02	37	.42	1.20	50			p. m.			40	.23	.24
p. m.			38	.46	2.40	55			1:02			45	.27	.48
12:30	.03	.04	39	.48	1.20	9:05			0			50	.31	.48
STORM OF APR. 17, 1939			40	.50	1.20	10			.05			55	.34	.36
Apr. 17			41	.54	2.40	14			.09			5:00	.36	.24
a. m.			42	.57	1.80	15			.25			STORM OF JULY 4-5, 1939		
8:00	0		45	.62	1.00	35			.31			July 4		
15	.01	0.04	50	.65	.36	45			.35			p. m.		
30	.02	.04	55	.66	.12	55			.44			11:30		
45	.03	.04	6:00	.68	.24	10:00			1.08			0		
9:00	.04	.04	7:00	.70	.12	10:05			2.10			.02		
STORM OF APR. 24, 1939			8:00	.72	.12	15			4.80			.06		
Apr. 24			9:00	.75	.18	20			2.40			.11		
a. m.			10	.77	.12	25			1.20			STORM OF JULY 16-17, 1939		
8:00	0		15	.78	.12	30			.60			July 16		
15	.01	0.04	30	.79	.04	35			.36			p. m.		
30	.02	.04	30	.80	.04	40			.24			3:42		
45	.03	.04	30	.81	.04	45			.30			.02		
9:00	.04	.04	STORM OF MAY 22, 1939			50			.60			.03		
STORM OF APR. 24, 1939			May 22			54			.84			.04		
Apr. 24			a. m.			55			.84			.06		
a. m.			2:25	0		59			.97			.10		
6:00	0		30	.05	0.60	15			.97			.10		
25	.01	0.04	35	.07	.24	20			1.01			.12		
27	.03	.60	40	.09	.24	25			1.02			.16		
34	.03	0	45	.15	.72	30			1.11			.25		
37	.04	.20	50	.22	.84	35			1.15			.26		
45	.04	0	55	.25	.36	40			1.22			.27		
50	.07	.36	3:00	.28	.36	45			1.27			.04		
STORM OF APR. 26, 1939			10	.32	.24	50			1.30			.08		
Apr. 26			35	.32	0	54			1.32			.09		
a. m.			45	.34	.12	55			1.32			.10		
8:00	0		55	.37	.18	15			1.32			.12		
15	.01	0.04	58	.38	.20	20			1.32			.16		
30	.02	.04	STORM OF MAY 26, 1939			25			1.32			.20		
45	.03	.04	May 26			30			1.32			.24		
9:00	.04	.04	p. m.			35			1.32			.28		
STORM OF APR. 26, 1939			7:40			40			1.32			.32		
Apr. 26			45			45			1.32			.36		
a. m.			55			50			1.32			.40		
3:30	0		8:05			55			1.32			.44		
40	.03	0.18	15			15			1.32			.48		
50	.05	.12	30			20			1.32			.52		
55	.09	.24	45			25			1.32			.56		
10	.12	.18	50			30			1.32			.60		
20	.14	.12	55			35			1.32			.64		
30	.17	.18	3:00			40			1.32			.68		
45	.18	.04	15			45			1.32			.72		
STORM OF APR. 26, 1939			25			50			1.32			.76		
Apr. 26			35			55			1.32			.80		
a. m.			40			60			1.32			.84		
9:36	0		45			65			1.32			.88		
45	.02	0.13	50			70			1.32			.92		
10:00	.11	.44	55			75			1.32			.96		
10	.16	.30	60			80			1.32			1.00		
15	.17	.12	65			85			1.32			1.04		
STORM OF MAY 20, 1939			70			90			1.32			1.08		
May 20			75			95			1.32			1.12		
a. m.			80			100			1.32			1.16		
1:10	0		85			105			1.32			1.20		
20	.03	0.18	90			110			1.32			1.24		
STORM OF MAY 20, 1939			95			115			1.32			1.28		
May 20			100			120			1.32			1.32		
a. m.			105			125			1.32			1.36		
1:10	0		110			130			1.32			1.40		
20	.03	0.18	115			135			1.32			1.44		
STORM OF MAY 20, 1939			120			140			1.32			1.48		
May 20			125			145			1.32			1.52		
a. m.			130			150			1.32			1.56		
1:10	0		135			155			1.32			1.60		
20	.03	0.18	140			160			1.32			1.64		
STORM OF MAY 20, 1939			145			165			1.32			1.68		
May 20			150			170			1.32			1.72		
a. m.			155			175			1.32			1.76		
1:10	0		160			180			1.32			1.80		
20	.03	0.18	165			185			1.32			1.84		
STORM OF MAY 20, 1939			170			190			1.32			1.88		
May 20			175			195			1.32			1.92		
a. m.			180			200			1.32			1.96		
1:10	0		185			205			1.32			2.00		
20	.03	0.18	190			210			1.32			2.04		
STORM OF MAY 20, 1939			195			215			1.32			2.08		
May 20			200			220			1.32			2.12		
a. m.			205			225			1.32			2.16		
1:10	0		210			230			1.32			2.20		
20	.03	0.18	215			235			1.32			2.24		
STORM OF MAY 20, 1939			220			240			1.32			2.28		
May 20			225			245			1.32			2.32		
a. m.			230			250			1.32			2.36		
1:10	0		235			255			1.32			2.40		
20	.03	0.18	240			260			1.32			2.44		
STORM OF MAY 20, 1939			245			265			1.32			2.48		
May 20			250			270			1.32			2.52		
a. m.			255			275			1.32			2.56		
1:10	0		260			280			1.32			2.60		
20	.03	0.18	265			285			1.32			2.64		
STORM OF MAY 20, 1939			270			290			1.32			2.68		
May 20			275			295			1.32			2.72		
a. m.			280			300			1.32			2.76		
1:10	0		285			305			1.32			2.80		
20	.03	0.18	290			310			1.32			2.84		
STORM OF MAY 20, 1939			295			315			1.32			2.88		
May 20			300			320			1.32			2.92		
a. m.			305			325			1.32			2.96		
1:10	0		310			330			1.32			3.00		
20	.03	0.18	315			335			1.32			3.04		
STORM OF MAY 20, 1939			320			340			1.32			3.08		
May 20			325			345			1.32			3.12		
a. m.			330			350			1.32			3.16		
1:10	0		335			355			1.32			3.20		
20	.03	0.18	340			360			1.32			3.24		
STORM OF MAY 20, 1939			345			365			1.32			3.28		
May 20			350			370			1.32			3.32		
a. m.			355			375			1.32			3.36		
1:10	0		360			380			1.32			3.40		
20	.03	0.18	365			385			1.32			3.44		
STORM OF MAY 20, 1939			370			390			1.32			3.48		
May 20			375			395			1.32			3.52		
a. m.			380			400			1.32			3.56		
1:10	0		385			405			1.32			3.60		
20	.03	0.18	390			410			1.32			3.64		
STORM OF MAY 20, 1939			395			415			1.32			3.68		
May 20			400			420			1.32			3.72		
a. m.			405			425			1.32			3.76		
1:10	0		410			430			1.32			3.80		
20	.03	0.18	415			435			1.32			3.84		
STORM OF MAY 20, 1939			420			440			1.32			3.88		
May 20			425			445			1.32			3.92		
a. m.			430			450			1.32			3.96		
1:10	0		435			455			1.32			4.00		
20	.03	0.18	440			460			1.32			4.04		
STORM OF MAY 20, 1939			445			465			1.32			4.08		
May 20			450			470			1.32			4.12		
a. m.			455			475			1.32			4.16		
1:10	0		460			480			1.32			4.20		
20	.03	0.18	465			485			1.32			4.24		
STORM OF MAY 20, 1939			470			490			1.32			4.28		
May 20			475			495			1.32			4.32		
a. m.			480			500			1.32			4.36		
1:10	0		485			505			1.32			4.40		
20	.03	0.18	490			510			1.32			4.44		
STORM OF MAY 20, 1939			495			515			1.32			4.48		
May 20			500			520			1.32			4.52		
a. m.			505			525			1.32			4.56		
1:10	0		510			530			1.32			4.60		
20	.03	0												



TABLE 59.—Rainfall at station B38R (meteorological station) for all storms, Apr. 10, 1939, to Dec. 31, 1940—Continued

[illegible]



TABLE 59.—Rainfall at station B38R (meteorological station) for all storms, Apr. 10, 1939, to Dec. 31, 1940—Continued

Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity
STORM OF APR. 6-7, 1940			STORM OF APR. 27, 1940			STORM OF MAY 17, 1940—Continued			STORM OF MAY 20, 1940—Continued			STORM OF JULY 8, 1940		
Apr. 6-7	Inches 0.22	Inches per hour	Apr. 27	Inches	Inches per hour	May 17	Inches	Inches per hour	May 20	Inches	Inches per hour	July 8	Inches	Inches per hour
			a. m.			a. m.			p. m.			a. m.		
			9:48	0		2:25	0.41	0.48	6:30	0.05	0.04	11:58	0	
			:50	.01	0.30	:30	.43	.24	:40	.06	.06	12:00	.01	0.30
STORM OF APR. 9-10, 1940			:52	.02	.30	:35	.46	.36	:50	.07	.06			
			:55	.03	.20	:40	.49	.36	:55	.08	.12	p. m.		
Apr. 9			10:45	.03	0	:45	.51	.24	7:00	.09	.12	12:20	.01	0
p. m.			11:00	.06	.12	:50	.52	.12	:10	.10	.06	:30	.02	.06
8:30	0	0.06	STORM OF APR. 28, 1940			:55	.53	.12	:20	.11	.06	:45	.03	.04
:40	.01	.06	Apr. 28			3:00	.54	.12	:30	.12	.06	1:00	.04	.04
:50	.02	.06	a. m.			:15	.55	.04	:40	.16	.24	:10	.05	.06
10:00	.02	0	9:05	0		:20	.57	.24	:45	.18	.24	:15	.06	.12
:10	.03	.06				:25	.58	.12	STORM OF MAY 30, 1940			STORM OF JULY 20, 1940		
Apr. 10			Apr. 28			:30	.60	.24	May 30			July 20		
a. m.			9:05	0		:35	.61	.12	p. m.			a. m.		
1:20	.03	0	:10	.01	0.12	:40	.63	.24	3:30	0		5:46	0	
:30	.07	.24	:15	.02	.12	:45	.65	.24	:45	.01	0.04	:48	.06	1.80
:40	.07	0	:20	.03	.12	:50	.67	.24	:50	.02	.04	:50	.09	.90
:50	.09	.12	:25	.04	.12	:55	.69	.24	:55	.03	.04	:55	.10	.12
6:20	.09	0	:30	.06	.24	4:00	.71	.24	STORM OF JUNE 5, 1940			STORM OF JULY 27, 1940		
:30	.10	.06	:35	.08	.24	:05	.75	.48	June 5	0.02		July 27		
STORM OF APR. 16-17, 1940			STORM OF MAY 6, 1940			:10	.77	.36	STORM OF JUNE 6, 1940			a. m.		
Apr. 16			May 6	0.01		:15	.79	.24	June 6	0.02		2:15	0	
p. m.			STORM OF MAY 7, 1940			:20	.81	.24	STORM OF JUNE 8, 1940			:20	.01	0.12
11:50	0		May 7			:25	.83	.24	June 8			:25	.02	.12
:55	.01	0.12	a. m.			:30	.85	.24	8:08	0		:30	.05	.36
12:00	.02	.12	8:45	0		:40	.90	.30	:10	.06	1.80	:35	.07	.24
Apr. 17			:47	.02	0.60	:50	.95	.30	:15	.18	2.40	:40	.08	.12
a. m.			:50	.03	.20	5:00	1.00	.30	:20	.24	2.80	:45	.08	0
12:05	.03	.12	:57	.03	0	:10	1.05	.30	:25	.24	2.10	3:00	.08	.08
:10	.04	.12	:58	.04	.20	:20	1.07	.12	:30	.24	1.80	:15	.10	.24
:15	.05	.12	9:00	.04	.20	:30	1.09	.12	:35	.24	1.40	:20	.12	.24
:20	.06	.12	:05	.08	.48	:40	1.11	.12	:40	.24	1.00	:25	.13	.12
:25	.07	.12	:10	.10	.24	:45	1.13	.24	:45	.24	0.80	STORM OF JULY 30, 1940		
:30	.09	.24	:15	.12	0	:50	1.14	.12	STORM OF AUG. 3, 1940			July 30	0.03	
:35	.11	.24	:20	.12	.12	7:00	1.15	.06	Aug. 3			a. m.		
:40	.14	.36	:25	.10	0	:15	1.15	0	6:15	0		:20	.03	0.36
:45	.18	.24	:30	.11	.12	:20	1.16	.12	:25	.06	.36	:25	.06	.36
:50	.18	.24	:35	.12	.12	:25	1.17	.12	:30	.09	.36	:30	.09	.36
1:00	.22	.24	:40	.12	0	:30	1.18	.12	:35	.10	.12	:35	.10	.12
:10	.25	.18	:45	.12	.12	:35	1.20	.24	:40	.11	.06	STORM OF AUG. 4, 1940		
:20	.28	.18	5:00	.12	0	:40	1.21	.12	Aug. 4			Aug. 4		
:30	.31	.18	10:00	.13	.06	:45	1.22	.12	8:40	0		p. m.		
:40	.33	.12	:15	.14	.04	8:20	1.22	0	:45	.15	1.80	:45	.15	1.80
:45	.33	0	:20	.15	.04	:30	1.23	.06	:50	.30	1.80	:50	.30	1.80
4:00	.34	.02	:25	.16	.01	:45	1.24	.04	:55	.38	.96	:55	.38	.96
5:00	.35	.01	STORM OF MAY 13, 1940			STORM OF MAY 18, 1940			9:00	.93	.12	9:00	.40	.24
STORM OF APR. 22, 1940			May 13			May 18			:05	.94	.12	STORM OF AUG. 5, 1940		
Apr. 22			p. m.			a. m.			:10	.95	.12	Aug. 5		
a. m.			5:25	0		1:00	0		:15	.96	.12	9:25	0	
7:05	0		:28	.08	1.60	:10	.01	0.06	:20	.97	.12	a. m.		
:10	.01	0.12	:30	.10	.60	:20	.02	.06	:25	.99	.24	:28	.01	0.20
:15	.02	.12	:33	.17	1.40	:30	.04	.12	:30	1.02	.36	:30	.02	.12
:20	.03	.12	:35	.18	.30	:40	.06	.12	:35	1.04	.24	:35	.03	.02
:25	.04	.12	:40	.19	.12	:45	.08	.12	:40	1.06	.24	:40	.04	.24
:30	.07	.36	8:40	.19	0	5:00	.09	.06	:45	1.08	.24	:45	.04	.24
:40	.11	.24	:50	.20	.06	3:00	.10	.02	10:00	1.10	.08			
:50	.15	.24	:55	.22	.06	:30	.10	.02	:15	1.12	.08	STORM OF MAY 20, 194		
8:00	.18	.18	9:00	.24	.04	:40	.12	.12	June 22			May 20		
:10	.21	.18	:30	.26	.04	:45	.13	.06	p. m.			a. m.		
:20	.25	.24	:45	.28	.04	6:00	.14	.08	3:05	.26	0	1:55	0	
:30	.25	0	10:00	.30	.08	:15	.16	.04	:10	.27	.12	2:00	.02	0.24
:40	.26	.06	:15	.30	.08	:20	.18	.12	:20	.28	.06	:05	.04	.24
STORM OF APR. 27, 1940			:25	.30	.08	:25	.19	.06	:25	.28	0	:08	.06	.40
Apr. 27			:30	.30	.08	:30	.20	.12	:30	.28	.04	:10	.08	.60
a. m.			:35	.30	.08	:35	.21	.06	:35	.28	.04	:13	.16	1.60
3:05	.26	0	10:00	.30	.08	:40	.22	.12	:40	.28	.04	:15	.24	2.40
:10	.27	.12	:15	.30	.08	:45	.23	.06	:45	.28	.04	:17	.31	2.10
:20	.28	.06	:20	.30	.08	6:00	.24	.06	:50	.28	.04	:20	.37	1.20
:30	.28	0	:25	.30	.08	:15	.26	.08	7:00	.30	.02			
:45	.29	.04	:30	.30	.08	:20	.27	.04	STORM OF MAY 20, 194			STORM OF JULY 8, 1940		
4:00	.30	.04	:25	.30	.08	:25	.28	.04	May 20			July 8		
7:40	.30	0	:30	.30	.08	:30	.29	.04	p. m.			a. m.		
:45	.31	.12	:35	.30	.08	:35	.30	.02	3:30	0		5:46	0	
:50	.33	.24	:40	.30	.08	:40	.30	.02	:45	.01	0.04	:48	.06	1.80
:55	.34	.12	:45	.30	.08	:45	.30	.02	:50	.02	.04	:50	.09	.90
STORM OF APR. 27, 1940									:55	.03	.04	:55	.10	.12
Apr. 27									STORM OF JUNE 22, 1940			STORM OF JULY 20, 1940		
a. m.									June 22			July 20		
3:05	.26	0							p. m.			a. m.		
:10	.27	.12							3:30	0		5:46	0	
:20	.28	.06							:45	.01	0.04	:48	.06	1.80
:30	.28	0							:50	.02	.04	:50	.09	.90
:45	.29	.04							:55	.03	.04	:55	.10	.12
4:00	.30	.04							STORM OF JULY 27, 1940			STORM OF JULY 30, 1940		
7:40	.30	0							July 27			July 30	0.03	
:45	.31	.12							a. m.			a. m.		
:50	.33	.24							2:15	0		6:15	0	
:55	.34	.12							:20	.01	0.12	:20	.03	0.36



TABLE 59.—Rainfall at station B38R (meteorological station) for all storms, Apr. 10, 1939, to Dec. 31, 1940—Continued

Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity
STORM OF AUG. 5, 1940—Continued			STORM OF AUG. 27, 1940—Continued			STORM OF SEPT. 24, 1940—Continued			STORM OF OCT. 5-6, 1940			STORM OF NOV. 8-9, 1940		
Aug. 5			Aug. 27			Sept. 24			Oct. 5			Nov. 8		
p. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour
1:30-----	0.04	0	3:10-----	0.17	0.48	1:15-----	0.02	0.04	11:30-----	0	0.06	10:30-----	0	0.12
2:00-----	.06	.04	:15-----	.18	.12	:30-----	.03	.04	:40-----	.01	.06	:35-----	.01	.12
						:40-----	.04	.06	:50-----	.02	.06	:40-----	.03	.24
STORM OF AUG. 8, 1940			STORM OF SEPT. 4, 1940			:45-----	.05	.12				:45-----	.05	.24
Aug. 8			Sept. 4			:50-----	.06	.12	Oct. 6			11:10-----	.06	.02
a. m.			a. m.			:55-----	.07	.12	a. m.			:15-----	.08	.24
3:35-----	0	0.48	12:00-----	0		2:00-----	.09	.24	12:38-----	.02	0	:20-----	.10	.24
:40-----	.04	.48	a. m.			:05-----	.11	.24	:40-----	.03	.30	:25-----	.12	.24
:45-----	.08	.48	p. m.			:10-----	.13	.24	:45-----	.04	.12	:30-----	.13	.12
:50-----	.09	.12	12:10-----	.02	0.12	:15-----	.15	.24	:50-----	.06	.24	:35-----	.15	.24
:55-----	.11	.24	:20-----	.04	.12	:20-----	.17	.24	:55-----	.07	.12	:40-----	.16	.12
4:00-----	.12	.12	:30-----	.06	.12	:25-----	.18	.12	1:00-----	.08	.12	:50-----	.17	.06
:30-----	.14	.04	:40-----	.07	.06	:28-----	.20	.40				12:00-----	.18	.06
5:00-----	.16	.04	STORM OF SEPT. 9, 1940			:30-----	.23	.90	STORM OF OCT. 9-10, 1940			Nov. 9		
:10-----	.17	.06	Sept. 9			:31-----	.26	1.80	Oct. 9			a. m.		
:20-----	.18	.06	5:10-----	0	0.03	:40-----	.34	1.20	11:20-----	0	0.06	12:10-----	.19	.06
6:00-----	.18	0	:30-----	.01	.03	:50-----	.43	.24	:30-----	.01	.06	:15-----	.20	.12
:30-----	.20	.04	:50-----	.02	.03	3:00-----	.47	.24	:40-----	.02	.06	:20-----	.21	.12
:7:00-----	.24	.08				:10-----	.51	.24	:50-----	.03	.06	:30-----	.24	.18
:30-----	.26	.04				:20-----	.55	.24	:55-----	.04	.12	:40-----	.27	.18
8:00-----	.29	.04				:25-----	.57	.24	1:00-----	.06	.06	:50-----	.30	.18
10:15-----	.29	0				:30-----	.58	.12	:05-----	.32	.12	:55-----	.31	.06
:30-----	.31	.08				:40-----	.59	.12	:10-----	.34	.24	:55-----	.32	.12
STORM OF AUG. 12, 1940						:45-----	.61	.24	:15-----	.36	.24	:55-----	.36	.24
Aug. 12						:50-----	.62	.12	:20-----	.37	.12	:55-----	.37	.12
a. m.						4:00-----	.63	.06	:25-----	.38	.12	:55-----	.38	.12
6:25-----	0	0.12				:05-----	.64	.12	:30-----	.39	.12	:55-----	.39	.12
:30-----	.01	.04				:10-----	.65	.12	:35-----	.40	.12	:55-----	.40	.12
:45-----	.02	.04				STORM OF OCT. 1, 1940			:50-----	.40	0	:55-----	.42	.12
:50-----	.03	.04				Oct. 1			:55-----	.42	.12	:55-----	.44	.12
:15-----	.04	.04				a. m.			1:40-----	.04	.01	:55-----	.45	.12
:30-----	.06	.08				3:40-----	0	0.02	STORM OF OCT. 27-28, 1940			:55-----	.47	.



TABLE 59.—Rainfall at station B38R (meteorological station) for all storms, Apr. 10, 1939, to Dec. 31, 1940—Continued

Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity
STORM OF NOV. 20-21 1940			STORM OF NOV. 25-26 1940—Continued			STORM OF NOV. 25-26, 1940—Continued			STORM OF DEC. 14-16, 1940			STORM OF DEC. 14-16, 1940—Continued		
Nov. 20			Nov. 25			Nov. 26			Dec. 14			Dec. 15		
p. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour
4:30	0	0.06	1:00	0.01	0.01	1:00	0.32	0.01	9:50	0	0.06	1:00	0.21	0.01
5:00	.03	0	:30	.02	.02	2:00	.33	.01	10:00	0.01	0.06	2:00	.22	.01
8:00	.03	0	2:00	.03	.02				:10	.02	0.06	5:00	.22	0
:30	.04	.02	:35	.03	0	STORM OF DEC. 2, 1940			:20	.03	0.06	6:00	.23	.01
9:00	.05	.02	:45	.04	.06				:30	.04	0.06	7:00	.24	.01
10:00	.05	0	:55	.05	.06				:45	.05	0.04	8:00	.25	.01
11:00	.06	.01	3:00	.06	.12				11:00	.06	0.04	10:00	.26	T .01
Nov. 21			:05	.07	.12	Dec. 2	0.01		:05	.07	.12	:30	.27	.02
a. m.			:10	.08	.12	STORM OF DEC. 12, 1940			:15	.08	0.06	11:00	.28	.02
3:40	.06	0	:20	.09	.06				:30	.09	0.04	12:00	.29	.01
:45	.08	.24	:30	.10	.06				:45	.10	0.04	Dec. 16		
:50	.09	.12	:45	.11	.04				12:00	.11	0.04	a. m.		
4:00	.10	.06	4:00	.12	.04	Dec. 12						1:00	.30	.01
:10	.12	.12	5:00	.14	.02	a. m.			Dec. 15					
:20	.14	.12	6:00	.16	.02	3:20	0	0.02	a. m.			Dec. 31		
:30	.18	.24	7:00	.18	.02	:45	.01	0.02	12:30	.13	0.04	a. m.		
:40	.22	.24	:30	.20	.04	4:00	.02	.04	1:00	.15	0.04	4:00	0.01	
			8:00	.22	.04	:30	.03	.02	2:00	.16	.01	p. m.		
STORM OF NOV. 25-26, 1940			:10	.23	.06	5:00	.04	.02	3:00	.17	.01	6:20	.01	0
Nov. 25			:20	.24	.06				8:00	.17	0	:40	.02	.03
a. m.			:30	.25	.06	STORM OF DEC. 13-14, 1940			9:00	.18	.01	:50	.04	.12
12:00	0		9:00	.27	.04				11:00	.19		7:00	.06	.12
			:30	.29	.04	Dec. 13-14	0.06		12:00	.20	.01			
			10:00	.30	.04									
			12:00	.31	.01									

TABLE 60.—Rainfall at station C23R for storms producing run-off, 1939-40

Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity
STORM OF MAY 20, 1939			STORM OF JUNE 12, 1939—Continued			STORM OF JUNE 20, 1939—Continued			STORM OF JUNE 25, 1939—Continued			STORM OF AUG. 1, 1939—Continued		
May 20			June 12			June 20			June 25			Aug. 1		
a. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour
1:08	0	0.30	9:25	0.26	0.84	1:55	0.66	0.12	1:35	0.28	0.36	3:00	0.04	0.04
:10	.01	.12	:30	.31	.60	4:13	.66	0	:40	.30	.24	:30	.05	.02
:20	.03	0	:35	.32	.12	:15	.67	.30	:50	.32	.12	:40	.08	.18
2:40	.03	0				:20	.72	.60	2:00	.33	.06	:50	.10	.12
:41	.08	3.00	STORM OF JUNE 15, 1939			:25	.78	.72	:30	.36	.06	4:00	.10	0
:43	.10	.60				:30	.81	.36	3:00	.40	.08	:15	.11	.04
:45	.12	.60	June 15			:36	.92	1.10	:30	.47	.14	:30	.13	.08
:50	.15	.36	a. m.			:40	.93	.15	4:00	.53	.12	p. m.		
3:00	.18	.18	3:15	0		:50	.95	.12				7:50	.34	
5:25	.18	0	:16	.03	1.80	5:00	.96	.06	STORM OF JULY 1, 1939					
:28	.20	.40	:17	.07	2.40	STORM OF JUNE 21, 1939			July 1			STORM OF AUG. 7, 1939		
:30	.25	1.50	:18	.12	3.00	June 21			a. m.			Aug. 7		
:31	.29	2.40	:20	.26	4.20	p. m.			1:30	0		1:00	0	
:32	.33	2.40	:22	.37	3.30	7:39	0	0.20	:40	.02	0.12	:30	.01	0.02
:33	.37	2.40	:25	.47	2.00	:42	.01	0.02	:42	.05	.90	2:00	.02	.02
:34	.41	2.40	:27	.53	1.80	:44	.03	.60	:45	.06	.20	:15	.03	.04
:35	.45	2.40	:30	.57	.80	:48	.09	.90	2:00	.08	.08	:20	.04	.12
:37	.50	1.50	:32	.59	.60	:50	.12	.90	:50	.08	0	:25	.08	.48
:38	.52	1.20	:36	.60	.15	:55	.16	.48	3:00	.10	.12	:30	.09	.12
:39	.55	1.80	STORM OF JUNE 20, 1939			8:00	.18	.24	4:00	.12	.24	:40	.11	.12
:40	.58	1.80	June 20			:10	.18	0	:05	.14	.24	:45	.14	.36
:42	.62	1.20	p. m.			:15	.19	.12	:10	.18	.48	:47	.15	.30
:45	.67	1.00	1:03	0		STORM OF JUNE 25, 1939			:14	.20	.30	4:20	.15	0
:47	.70	.90	:05	.03	0.90				:25	.20	0	:30	.16	.06
:50	.74	.80	:10	.10	.84	June 25			:35	.22	.24	:35	.17	.12
6:00	.76	.12	:13	.20	2.00	a. m.			:40	.26	.48	:40	.21	.48
:10	.78	.12	:15	.25	1.50	1:02	0	0.40	:45	.27	.12	:45	.28	.84
:20	.80	.12	:20	.31	.72	:05	.02	.04	:50	.28	.12	:50	.31	.36
:30	.82	.12	:25	.41	1.20	:10	.04	.24	5:00	.33	.12	5:00	.32	.06
:45	.85	.12	:30	.49	.96	STORM OF AUG. 1, 1939			STORM OF AUG. 1, 1939			:15	.32	0
7:00	.86	.04	:35	.55	.72				Aug. 1			:20	.33	.12
STORM OF JUNE 12, 1939			:40	.59	.48				a. m.			:23	.34	.20
June 12			:45	.63	.48				2:08	0		:25	.40	1.80
p. m.			:50	.65	.24				:30	.02	0.06	:30	.53	1.56
9:11	0	0.30										:35	.55	.24
:15	.02	0.70										:45	.56	.06
:17	.11	2.70												
:20	.19	1.60												



TABLE 60.—Rainfall at station C23R for storms producing run-off, 1939-40—Continued

Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity
STORM OF AUG. 7, 1939—Continued			STORM OF MAR. 1-2, 1940—Continued			STORM OF MAY 17, 1940—Continued			STORM OF MAY 17, 1940—Continued			STORM OF NOV. 8-9, 1940—Continued		
Aug. 7			Mar. 1			May 17			May 17			Nov. 8		
p. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour
6:00-----	0.57	0.04	3:00-----	0.09	0.01	2:35-----	0.18	0.36	8:30-----	0.93	0.12	10:35-----	0.01	0.12
7:15-----	.57	0	:30-----	.11	.04	:40-----	.20	.24	:40-----	.94	.06	:40-----	.03	.24
:30-----	.59	.08	4:00-----	.12	.02	:50-----	.22	.12				:45-----	.05	.24
:35-----	.60	.12	5:00-----	.13	.01	3:00-----	.24	.12	STORM OF JUNE 8, 1940			11:10-----	.06	.02
:40-----	.63	.36	6:00-----	.14	.01	:10-----	.26	.12	June 8			:20-----	.09	.18
:50-----	.64	.06	:30-----	.15	.02	:20-----	.28	.12	p. m.			:30-----	.12	.18
8:00-----	.64	0	7:00-----	.18	.06	:30-----	.32	.24	8:08-----	0		12:00-----	.13	.02
:15-----	.65	.04	8:00-----	.24	.06	:40-----	.36	.24	:10-----	.02	0.60	Nov 9		
:30-----	.66	.04	9:00-----	.25	.01	:50-----	.40	.24	:12-----	.05	.90	a. m.		
:45-----	.68	.08	10:00-----	.29	.04	:55-----	.42	.24	:15-----	.16	2.20	12:15-----	.14	.04
9:00-----	.73	.20	11:00-----	.31	.02	4:00-----	.45	.36	:19-----	.25	1.35	:20-----	.16	.24
:15-----	.76	.12	12:00-----	.33	.02	:05-----	.48	.36	:20-----	.30	3.00	:25-----	.18	.24
:20-----	.78	.24				:10-----	.49	.12	:25-----	.55	3.00	:30-----	.19	.12
STORM OF AUG. 11, 1939			Mar. 2			:15-----	.50	.12	:30-----	.68	1.56	:35-----	.21	.24
Aug. 11			a. m.			:25-----	.53	.24	:33-----	.72	.80	:40-----	.22	.12
p. m.			1:00-----	.34	.01	:30-----	.55	.24	:35-----	.75	.90	:45-----	.24	.12
9:46-----	0		2:00-----	.36	.02	:35-----	.57	.24	:40-----	.83	.96	:50-----	.24	.12
:50-----	.06	0.90	3:00-----	.36	0	:40-----	.60	.36	:45-----	.88	.60	1:00-----	.26	.12
:52-----	.17	2.70	4:00-----	.37	.01	:45-----	.63	.36	:50-----	.90	.24	:10-----	.28	.12
:54-----	.29	3.60	5:00-----	.38	.01	:50-----	.65	.24	:55-----	.92	.24	:20-----	.30	.12
:55-----	.34	3.00	6:00-----	.39	.01	:55-----	.68	.36	9:00-----	.93	.12	:30-----	.31	.06
:58-----	.44	2.00	7:00-----	.40	.01	5:00-----	.71	.36	:05-----	.95	.24	:50-----	.32	.03
10:00-----	.49	1.50	9:00-----	.40	0	:05-----	.74	.36	:10-----	.96	.12	2:00-----	.34	.12
:04-----	.55	.90	10:00-----	.41	.01	:10-----	.76	.24	:15-----	.97	.12	:10-----	.36	.12
:10-----	.56	.10	11:00-----	.43	.02	:15-----	.77	.12	:20-----	.98	.12	:20-----	.38	.12
:20-----	.57	.06	12:00-----	.45	.02	:20-----	.78	.12	:25-----	1.00	.12	:30-----	.39	.06
STORM OF MAR. 1-2, 1940			STORM OF MAY 17, 1940			:25-----	.79	.12	:30-----	1.02	.24	:40-----	.40	0
Mar. 1			May 17			:30-----	.80	.12	:35-----	1.04	.24	5:00-----	.40	0
a. m.			a. m.			:40-----	.81	.06	:40-----	1.06	.24	6:00-----	.41	.01
11:00-----	0		1:55-----	0	0.12	:45-----	.82	.06	:45-----	1.08	.24	8:00-----	.41	0
12:00-----	.03	0.03	2:00-----	.01	0.12	:50-----	.82	.06	:50-----	1.09	.12	9:00-----	.42	.01
p. m.			:05-----	.03	.24	6:35-----	.82	0	10:00-----	1.10	.06	10:30-----	.42	0
1:00-----	.07	.04	:10-----	.05	.24	:40-----	.83	.12	:10-----	1.11	.06	:40-----	.43	.06
2:00-----	.08	.01	:15-----	.06	.12	:45-----	.84	.12	:20-----	1.12	.06	:45-----	.47	.48
			:20-----	.07	.12	:50-----	.85	.12	:30-----	1.13	.06	:50-----	.49	.24
			:25-----	.10	.36	:55-----	.86	.12	STORM OF NOV. 8-9, 1940			:55-----	.51	.24
			:30-----	.15	.60	7:10-----	.86	0	Nov. 8			11:00-----	.52	.12
						:20-----	.87	.06	p. m.			:10-----	.53	.06
						:30-----	.88	.06	10:30-----	0		12:00-----	.53	0
						:35-----	.90	.24						
						:40-----	.91	.12						
						:45-----	.92	.12						
						8:25-----	.92	0						

TABLE 61.—Rainfall at station C24R for storms producing run-off, 1939-40

Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity
STORM OF MAY 20, 1939			STORM OF MAY 22, 1939—Continued			STORM OF MAY 26-27, 1939—Continued			STORM OF JUNE 9, 1939			STORM OF JUNE 15, 1939		
May 20			May 22			May 26			June 9			June 15		
a. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour		Inches	Inches per hour	a. m.	Inches	Inches per hour
1:10-----	0		2:35-----	0.04	0.24	9:30-----	0.49	0.12	p. m.			3:18-----	0	2.70
:15-----	.04	0.48	:38-----	.06	.40	12:00-----	.49	0	8:48-----	0		:20-----	.09	3.60
2:38-----	.04	0	:40-----	.10	1.20	May 27			:50-----	.01	0.30	:22-----	.21	3.60
:40-----	.06	.60	:45-----	.15	.60	a. m.			:55-----	.03	.24	:25-----	.34	2.80
:42-----	.11	1.50	:50-----	.21	.72	12:05-----	.52	.36	9:00-----	.07	.48	:30-----	.47	1.56
:45-----	.13	.40	:55-----	.24	.36	1:12-----	.52	0	:05-----	.11	.48	:32-----	.49	.60
:50-----	.15	.24	3:00-----	.26	.24	:15-----	.55	.60	:10-----	.14	.36	:35-----	.50	.20
:55-----	.17	.24	:06-----	.28	.20	STORM OF JUNE 1, 1939			:20-----	.18	.24	:40-----	.51	.12
5:25-----	.17	0	:40-----	.28	0	June 1			:30-----	.21	.18	STORM OF JUNE 20, 1939		
:30-----	.20	.36	:50-----	.31	.18	p. m.			:40-----	.22	.06	June 20		
:32-----	.27	2.10	:55-----	.33	.24	5:58-----	0		:50-----	.24	.12	p. m.		
:35-----	.39	2.40	STORM OF MAY 26-27, 1939			6:00-----	.01	0.30	:08-----	.25	.06	1:05-----	0	0.40
:40-----	.51	1.44	May 26			:01-----	.02	.60	:20-----	.31	.30	:12-----	.04	.30
:45-----	.59	.96	p. m.			:04-----	.09	1.40	:30-----	.38	.14	:15-----	.11	1.40
:50-----	.66	.84	7:40-----	0	1.60	:05-----	.10	.60	STORM OF JUNE 12, 1939			:23-----	.22	.83
:55-----	.69	.36	:43-----	.08	1.60	:10-----	.12	.24	June 12			:25-----	.29	2.10
6:05-----	.72	.36	:45-----	.12	1.20	:15-----	.16	.48	p. m.			:30-----	.37	.96
:15-----	.74	.12	:50-----	.16	.36	:20-----	.20	.48	9:05-----	0		:35-----	.43	.72
:25-----	.76	.12	:55-----	.20	.48	:25-----	.23	.36	:10-----	.01	0.12	:40-----	.48	.60
:35-----	.78	.12	8:00-----	.21	.12	:30-----	.25	.24	:13-----	.02	.20	:45-----	.53	.60
:45-----	.80	.12	:10-----	.24	.18	:35-----	.26	.12	:15-----	.07	1.50	:50-----	.55	.24
7:00-----	.81	.04	:20-----	.27	.18	:40-----	.27	.12	:20-----	.15	2.40	4:15-----	.55	0
:18-----	.82	.03	:30-----	.31	.24	:50-----	.28	.06	:25-----	.20	1.00	:20-----	.60	.96
STORM OF MAY 22, 1939			:40-----	.34	.18	7:00-----	.30	.12	:30-----	.20	1.00	:25-----	.68	.96
May 22			:50-----	.39	.30	:15-----	.32	.08	:35-----	.21	.60	:30-----	.71	.36
a. m.			:55-----	.42	.18	:30-----	.33	.04	:40-----	.27	1.80	:32-----	.72	.30
2:24-----	0		9:00-----	.45	.18	:45-----	.34	.04	:45-----	.30	.90	:38-----	.84	1.23
:30-----	.02	0.20	:10-----	.45	.18	8:00-----	.35	.04	:50-----	.32	.24	:40-----	.85	.10
			:20-----	.47	.12				:55-----	.33	.06	:50-----	.87	.60
												5:00-----	.88	.60
												:10-----	.89	.20



TABLE 61.—Rainfall at station C24R for storms producing run-off, 1939-40—Continued

Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity
STORM OF JUNE 21, 1939			STORM OF AUG. 1, 1939			STORM OF MAR. 1-2, 1940			STORM OF APR. 22, 1940—Continued			STORM OF MAY 18, 1940—Continued					
June 21			Aug. 1			Mar. 1			Apr. 22			May 18					
p. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour			
7:38-----	0	0.30	7:49-----	0	1.20	11:00-----	0	0.03	3:05-----	0.28	0	4:00-----	0.10	0.04			
:40-----	.01	.30	:50-----	.02	.90	12:00-----	.03		:10-----	.29	.12	:10-----	.11	.06			
:42-----	.02	.30	:52-----	.05	.90				:15-----	.30	.12	:20-----	.12	.06			
:45-----	.05	.60	:53-----	.06	.60	p. m.			:20-----	.31	.12	:30-----	.13	.06			
:50-----	.12	.84	:55-----	.18	3.60	1:00-----	.06	.03	:30-----	.32	.06	:40-----	.14	.06			
:52-----	.15	.90	:56-----	.23	3.00	2:00-----	.07	.01	:45-----	.33	.04	:50-----	.16	.12			
:55-----	.17	.40	:58-----	.24	.30	3:00-----	.08	.01	:50-----	.34	.12	5:00-----	.18	.12			
8:05-----	.18	.06	STORM OF AUG. 7, 1939						7:40-----	.34	0	:10-----	.20	.12			
:15-----	.19	.06	Aug. 7			4:30-----	.09	0	:45-----	.36	.24	:20-----	.22	.12			
STORM OF JUNE 25, 1939			p. m.			5:00-----	.10	.02	7:50-----	.37	.12	:30-----	.23	.06			
June 25			1:40-----	0	0.06	6:00-----	.12	.02	8:55-----	.38	.12	6:00-----	.25	.04			
a. m.			:50-----	.01	0.06	7:00-----	.14	.02	STORM OF MAY 17, 1940			:30-----	.27	.04			
12:25-----	0	0.08	:10-----	.02	0	8:00-----	.18	.04	May 17			7:00-----	.28	.02			
:40-----	.02	.08	:18-----	.03	.08	9:00-----	.19	.01	a. m.								
:50-----	.06	.24	:20-----	.04	.30	10:00-----	.22	.03	2:15-----	0	0.12	May 20					
:55-----	.11	.60	:25-----	.07	.36	11:00-----	.23	.03	:20-----	.01	.12	p. m.					
1:00-----	.15	.48	:30-----	.08	.12	12:00-----	.25	.02	:25-----	.03	.24	6:00-----	0	0.24			
:05-----	.18	.36	:38-----	.09	.08	STORM OF APR. 10, 1940			:35-----	.05	.24	:05-----	.02	.06			
:10-----	.21	.36	:40-----	.10	.30	Apr. 10			:40-----	.08	.12	:10-----	.03	.12			
:15-----	.23	.24	:45-----	.13	.36	a. m.			:45-----	.09	.12	:30-----	.03	0			
:20-----	.24	.12	:50-----	.14	.12	1:00-----	.26	.01	:50-----	.10	.12	:40-----	.04	.06			
:35-----	.25	.04	4:20-----	.14	0	12:00-----	.28		:55-----	.12	.24	:50-----	.05	.06			
:45-----	.26	.06	:30-----	.15	.06	STORM OF APR. 16-17, 1940			3:00-----	.14	.24	7:00-----	.07	.12			
2:00-----	.29	.12	:35-----	.16	.12	Apr. 16			:05-----	.15	.12	:10-----	.09	.12			
:10-----	.30	.06	:40-----	.19	.36	p. m.			:15-----	.16	.12	:20-----	.11	.12			
:20-----	.31	.06	:45-----	.25	.72	11:35-----	0	0.24	:25-----	.17	.12	:30-----	.13	.12			
:30-----	.33	.12	:50-----	.27	.24	:20-----	.02	.02	:30-----	.18	.12	:35-----	.16	.36			
:45-----	.36	.16	5:00-----	.28	.06	:25-----	.05	.36	:40-----	.20	.24	:40-----	.19	.36			
3:00-----	.40	.16	:21-----	.28	0	:30-----	.06	.12	:45-----	.22	.24	:42-----	.20	.30			
:10-----	.42	.12	:25-----	.37	1.35	:50-----	.07	.03	:50-----	.23	.12						
:20-----	.43	.06	:30-----	.48	1.32	STORM OF APR. 22, 1940			:55-----	.25	.24						
:30-----	.44	.06	:35-----	.51	.36	Apr. 22			:55-----	.27	.24						
:40-----	.45	.06	7:30-----	.51	0	11:35-----	0	0.12	:55-----	.29	.24						
STORM OF JULY 1, 1939			:40-----	.55	.24	:40-----	.01	.12	:55-----	.31	.24						
July 1			:50-----	.56	.06	:50-----	.03	.12	4:00-----	.34	.36						
a. m.			8:00-----	.57	.06	12:00-----	.05	.12	:05-----	.37	.36						
1:30-----	0	0.06	:20-----	.57	0	STORM OF APR. 22, 1940			:10-----	.39	.24						
:40-----	.01	.36	:30-----	.58	.06	Apr. 17			:15-----	.40	.12						
:50-----	.07	.36	:45-----	.61	.12	a. m.			:20-----	.41	.12						
2:52-----	.07	0	9:00-----	.65	.16	12:10-----	.06	.06	:25-----	.43	.24						
:54-----	.08	.30	:15-----	.69	.16	:15-----	.07	.12	:30-----	.45	.24						
4:00-----	.08	0	:30-----	.71	.08	:20-----	.08	.12	:35-----	.47	.24						
:05-----	.12	.48	STORM OF AUG. 11, 1939			:30-----	.12	.24	:40-----	.51	.48						
:10-----	.16	.48	Aug. 11			:40-----	.16	.24	:45-----	.54	.36						
:15-----	.19	.36	p. m.			:50-----	.20	.24	:50-----	.57	.36						
:30-----	.21	.08	9:45-----	0	0.48	1:00-----	.23	.18	:55-----	.59	.24						
:38-----	.22	.08	:50-----	.04	2.10	:10-----	.26	.18	5:00-----	.62	.36						
:40-----	.24	.60	:52-----	.11	2.10	:20-----	.29	.18	:05-----	.65	.36						
:52-----	.26	.10	:53-----	.15	2.40	:30-----	.32	.18	:10-----	.66	.12						
:58-----	.36	1.00	:54-----	.21	3.60	:40-----	.33	.18	:15-----	.67	.12						
5:08-----	.37	.06	:55-----	.25	2.40	:50-----	.35	.02	:20-----	.69	.24						
STORM OF JULY 4-5, 1939			:56-----	.28	1.80	3:30-----	.33	0	:25-----	.70	.12						
July 4			:57-----	.30	1.20	4:00-----	.34	.02	:30-----	.71	.12						
p. m.			:58-----	.35	3.00	5:00-----	.35	.01	:40-----	.72	.06						
11:36-----	0	0.30	:59-----	.38	1.80	STORM OF APR. 22, 1940			:45-----	.74	.12						
:40-----	.02	0.30	10:00-----	.40	1.20	Apr. 22			:50-----	.75	.04						
:50-----	.02	0	:05-----	.48	.96	a. m.			:55-----	.76	.06						
:52-----	.03	.30	:10-----	.50	.24	7:10-----	0	0.24	:55-----	.77	.06						
:54-----	.05	.60	:20-----	.51	.06	:20-----	.04	.24	:55-----	.78	.12						
12:00-----	.06	.10	:30-----	.54	.12	:30-----	.08	.24	:55-----	.82	.24						
STORM OF JULY 27, 1940			:40-----	.55	.12	:40-----	.11	.24	:55-----	.83	.12						
July 27			:50-----	.56	.06	:50-----	.15	.24	:55-----	.84	.06						
a. m.			:55-----	.57	.06	1:00-----	.18	.12	:55-----	.84	0						
12:04-----	.08	.30	:59-----	.59	.38	:20-----	.23	.18	8:30-----	.84	0						
:30-----	.09	.02	10:00-----	.65	.16	:30-----	.26	.18	:40-----	.85	.06						
1:00-----	.10	.02	:15-----	.69	.16	:40-----	.29	.18	:40-----	.86	.06						
			:30-----	.71	.08	3:30-----	.33	0	:40-----	.86	.06						



TABLE 61.—Rainfall at station C24R for storms producing run-off, 1939-40—Continued

Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity
STORM OF JULY 27, 1940—Continued			STORM OF SEPT. 22-23, 1940—Continued			STORM OF OCT. 1, 1940—Continued			STORM OF OCT. 9-10, 1940—Continued			STORM OF NOV. 8-9, 1940—Continued		
July 27			Sept. 23			Oct. 1			Oct. 9			Nov. 9		
a. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour
2:17-----	0.05	0.30	3:00-----	0.52	0.36	4:30-----	0.01	0	11:45-----	0.01	0.04	8:00-----	0.48	0.01
:22-----	.05	0	:05-----	.55	.36	5:00-----	.03	.04	12:00-----	.02	.04	10:00-----	.48	0
:25-----	.08	.36	:10-----	.59	.48	:30-----	.05	.04				:30-----	.49	.02
:30-----	.15	.84	:15-----	.61	.24	6:00-----	.06	.02	Oct. 10			:40-----	.50	.06
:35-----	.16	.12	:20-----	.63	.24	:10-----	.07	.06	a. m.			:45-----	.53	.36
3:05-----	.16	0	:25-----	.64	.12	:20-----	.08	.06	12:10-----	.03	.06	:50-----	.55	.24
:15-----	.17	.06	:30-----	.65	.12	:30-----	.09	.06	:20-----	.04	.06	:55-----	.57	.24
:20-----	.19	.24	:35-----	.66	.12	:45-----	.10	.04	:25-----	.05	.12	11:00-----	.58	.12
STORM OF AUG. 12, 1940			:40-----	.68	.24	7:00-----	.11	.04	:30-----	.06	.12	:15-----	.60	.06
Aug. 12-----	0.08	-----	:50-----	.69	.06	:15-----	.12	.04	:35-----	.07	.12	12:00-----	.61	.01
STORM OF SEPT. 22-23, 1940			:55-----	.70	.06	:25-----	.13	.06	STORM OF NOV. 8-9, 1940			STORM OF NOV. 25-26, 1940		
			:70-----	.71	.04	:30-----	.15	.24	Nov. 8			Nov. 25		
			:75-----	.72	.04	:35-----	.16	.12	p. m.			a. m.		
			STORM OF SEPT. 24, 1940			:40-----	.17	.12	10:30-----	0	-----	12:00-----	0	-----
			Sept. 24			:45-----	.18	.03	:35-----	.02	0.24	p. m.		
			a. m.			:50-----	.19	.04	:40-----	.04	.24	1:00-----	.01	0.01
			12:45-----	0	-----	:55-----	.20	.04	:45-----	.05	.12	2:00-----	.02	.01
			1:15-----	.01	0.02	8:00-----	.18	.03	:50-----	.06	.06	:30-----	.02	0
			1:45-----	.02	.04	8:15-----	.19	.04	:55-----	.07	.12	:35-----	.03	.12
			:30-----	.03	.06	8:30-----	.20	.04	:10-----	.08	.12	:40-----	.04	.12
			:40-----	.04	.12	9:00-----	.20	0	:15-----	.09	.12	:45-----	.05	.06
			:45-----	.06	.24	:30-----	.21	.03	:20-----	.10	.12	:50-----	.06	.06
			:50-----	.06	.24	:35-----	.22	.06	:25-----	.11	.12	:55-----	.07	.06
			2:00-----	.08	.12	STORM OF OCT. 1-2, 1940			:30-----	.13	.24	3:00-----	.08	.06
			:10-----	.10	.12	Oct. 1			:35-----	.14	.12	:10-----	.07	.06
			:20-----	.12	.12	p. m.			:40-----	.15	.06	:20-----	.08	.06
			:29-----	.14	.12	11:20-----	0	-----	:45-----	.16	.04	:30-----	.09	.06
			:30-----	.15	.60	:50-----	.01	0.02	Nov. 9			:40-----	.10	.06
			:35-----	.23	.96	Oct. 2			a. m.			:50-----	.11	.06
			:40-----	.31	.96	12:50-----	.01	0	12:15-----	.17	.04	:55-----	.12	.06
			:42-----	.34	.90	:55-----	.02	.12	:25-----	.20	.18	4:00-----	.12	.06
			:45-----	.36	.40	1:00-----	.03	.12	:30-----	.23	.18	5:00-----	.13	.01
			:50-----	.38	.24	:09-----	.03	0	:35-----	.26	.18	:30-----	.15	.04
			:55-----	.40	.24	:10-----	.04	.60	:40-----	.28	.12	6:00-----	.17	.04
			3:00-----	.42	.24	:12-----	.05	.30	:45-----	.28	.12	:30-----	.19	.04
			:05-----	.45	.36	:15-----	.06	.06	:50-----	.30	.12	7:00-----	.21	.04
			:10-----	.48	.36	:20-----	.07	.06	:55-----	.32	.12	:15-----	.22	.04
			:15-----	.52	.48	:30-----	.08	.06	1:05-----	.34	.12	:30-----	.24	.08
			:20-----	.53	.12	5:00-----	.08	.06	:15-----	.35	.12	:45-----	.26	.08
			:30-----	.55	.12	6:13-----	.08	0	:25-----	.36	.12	8:00-----	.28	.08
			:35-----	.56	.12	:15-----	.09	.30	:30-----	.37	.12	:15-----	.30	.08
			:40-----	.58	.24	:20-----	.10	.12	:35-----	.38	.12	:30-----	.32	.08
			:50-----	.62	.24	:30-----	.11	.12	:40-----	.39	.12	:45-----	.34	.08
			:55-----	.63	.12	:40-----	.13	.12	:45-----	.41	.24	9:00-----	.35	.04
			4:00-----	.64	.12	:50-----	.15	.12	:50-----	.42	.12	:30-----	.38	.06
			:05-----	.65	.12	7:00-----	.17	.12	:55-----	.43	.12	10:00-----	.41	.06
			:15-----	.66	.06	:10-----	.19	.12	:05-----	.44	.12	:30-----	.42	.01
			STORM OF OCT. 1, 1940			STORM OF OCT. 9-10, 1940			:10-----	.44	.12	:40-----	.43	.02
			Oct. 1			Oct. 9			:15-----	.44	.06	12:00-----	.44	.02
			a. m.			p. m.			:20-----	.44	.06	Nov. 26		
			3:45-----	0	-----	11:30-----	0	-----	:30-----	.45	.02	a. m.		
			4:00-----	.01	0.04				:35-----	.45	0	1:00-----	.46	.02
									:40-----	.46	.02	2:00-----	.48	.02
									:45-----	.47	.01			



TABLE 62.—Rainfall at station C29R for storms producing run-off, 1938-39

[illegible]

TABLE 63.—Rainfall at station C31R for storms producing run-off, 1938-40

[illegible]



TABLE 63.—Rainfall at station C31R for storms producing run-off, 1938-40—Continued

Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity
STORM OF APR. 9-10, 1939—Continued			STORM OF MAY 26, 1939—Continued			STORM OF JUNE 15, 1939—Continued			STORM OF JULY 1, 1939—Continued			STORM OF AUG. 11, 1939					
Apr. 9			May 26			June 15			July 1			Aug. 11					
p. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour			
10:30-----	0.03	0.06	7:50-----	0.04	0.24	3:26-----	0.18	1.80	2:54-----	0.06	0.60	9:55-----	0				
11:00-----	0.04	0.06	7:55-----	0.07	0.36	3:28-----	0.24	1.80	3:01-----	0.06	0	10:00-----	0.04	0.48			
11:30-----	0.06	0.06	8:00-----	0.09	0.24	3:30-----	0.29	1.50	3:04-----	0.08	0.40	10:01-----	0.05	0.60			
12:00-----	0.08	0.04	8:10-----	0.12	0.18	3:35-----	0.35	0.72	3:15-----	0.09	0.06	10:02-----	0.13	4.80			
	0.09	0.02	8:20-----	0.15	0.18	3:40-----	0.37	0.24	3:30-----	0.10	0.04	10:05-----	0.27	2.80			
Apr. 10			8:30-----	0.18	0.18	3:45-----	0.38	0.12	4:00-----	0.10	0	10:06-----	0.31	2.40			
a. m.			8:40-----	0.20	0.12	STORM OF JUNE 20, 1939			4:10-----	0.12	0.12	10:10-----	0.35	0.60			
12:20-----	0.10	0.03	8:50-----	0.24	0.24	June 20			4:20-----	0.16	0.24	10:20-----	0.36	0.06			
1:00-----	0.12	0.12	9:00-----	0.28	0.24	p. m.			4:30-----	0.19	0.18	STORM OF AUG. 14-15, 1939					
1:30-----	0.14	0.12	9:10-----	0.31	0.18	1:11-----			4:40-----	0.25	0.36	Aug. 14					
2:00-----	0.16	0.12	9:20-----	0.34	0.18	1:11-----			4:50-----	0.28	0.90	p. m.					
2:30-----	0.18	0.12	9:30-----	0.36	0.12	1:21-----			5:00-----	0.29	0.08	11:59-----			0		
3:00-----	0.21	0.18	9:40-----	0.37	0.06	1:25-----			5:10-----	0.31	0.60	12:00-----			0.01	0.60	
3:30-----	0.24	0.18	STORM OF JUNE 1, 1939			1:30-----			5:16-----	0.31	0.10	Aug. 15					
3:45-----	0.29	0.24	June 1			1:35-----			STORM OF JULY 4-5, 1939			a. m.					
4:00-----	0.31	0.24	p. m.			1:40-----			July 4			12:05-----			0.09	0.96	
4:15-----	0.33	0.24	5:20-----			1:45-----			p. m.			1:30-----			0.14	0.60	
4:30-----	0.35	0.24	5:55-----			2:00-----			11:49-----			2:00-----			0.16	0.12	
4:45-----	0.37	0.12	6:00-----			2:05-----			12:00-----			2:30-----			0.17	0.06	
5:00-----	0.42	0.20	6:03-----			2:15-----			12:10-----			3:00-----			0.18	0.06	
5:30-----	0.44	0.08	6:05-----			2:30-----			12:30-----			3:30-----			0.20	0.12	
5:45-----	0.45	0.04	6:10-----			2:35-----			12:40-----			3:40-----			0.22	0.04	
6:00-----	0.46	0.04	6:15-----			2:40-----			12:50-----			3:50-----			0.25	0.06	
6:30-----	0.47	0.02	6:20-----			2:45-----			1:00-----			4:00-----					
6:45-----	0.48	0.03	6:25-----			2:50-----			1:10-----			4:10-----					
STORM OF MAY 20, 1939			6:30-----			2:55-----			1:20-----			4:20-----					
May 20			6:35-----			3:00-----			1:30-----			4:30-----					
a. m.			6:40-----			3:05-----			1:40-----			4:40-----					
2:40-----	0		6:45-----			3:10-----			1:50-----			4:50-----					
2:45-----	0.05	0.60	6:50-----			3:15-----			2:00-----			5:00-----					
2:50-----	0.08	0.36	6:55-----			3:20-----			2:10-----			5:10-----					
2:55-----	0.10	0.24	7:00-----			3:25-----			2:20-----			5:20-----					
3:00-----	0.11	0.12	7:05-----			3:30-----			2:30-----			5:30-----					
5:25-----	0.11	0	7:10-----			3:35-----			2:40-----			5:40-----					
3:30-----	0.13	0.24	7:15-----			3:40-----			2:50-----			5:50-----					
3:32-----	0.16	0.90	7:20-----			3:45-----			3:00-----			6:00-----					
3:34-----	0.26	3.00	7:25-----			3:50-----			3:10-----			6:10-----					
3:36-----	0.33	2.10	7:30-----			3:55-----			3:20-----			6:20-----					
3:38-----	0.40	2.10	7:35-----			4:00-----			3:30-----			6:30-----					
4:00-----	0.45	1.50	7:40-----			4:05-----			3:40-----			6:40-----					
4:15-----	0.56	1.32	7:45-----			4:10-----			3:50-----			6:50-----					
4:30-----	0.61	0.60	7:50-----			4:15-----			4:00-----			7:00-----					
4:45-----	0.63	0.24	7:55-----			4:20-----			4:10-----			7:10-----					
5:00-----	0.65	0.24	8:00-----			4:25-----			4:20-----			7:20-----					
5:10-----	0.67	0.12	8:05-----			4:30-----			4:30-----			7:30-----					
5:20-----	0.69	0.12	8:10-----			4:35-----			4:40-----			7:40-----					
5:30-----	0.71	0.12	8:15-----			4:40-----			4:50-----			7:50-----					
5:40-----	0.73	0.12	8:20-----			4:45-----			5:00-----			8:00-----					
5:50-----	0.74	0.06	8:25-----			4:50-----			5:10-----			8:10-----					
7:10-----	0.75	0.03	8:30-----			4:55-----			5:20-----			8:20-----					
7:30-----	0.76	0.02	8:35-----			5:00-----			5:30-----			8:30-----					
STORM OF MAY 22, 1939			8:40-----			5:05-----			5:40-----			8:40-----					
May 22			8:45-----			5:10-----			5:50-----			8:50-----					
a. m.			8:50-----			5:15-----			6:00-----			9:00-----					
2:30-----	0		8:55-----			5:20-----			6:10-----			9:10-----					
2:35-----	0.04	0.12	9:00-----			5:25-----			6:20-----			9:20-----					
2:38-----	0.05	0.20	9:05-----			5:30-----			6:30-----			9:30-----					
2:40-----	0.13	2.40	9:10-----			5:35-----			6:40-----			9:40-----					
2:42-----	0.17	0.90	9:15-----			5:40-----			6:50-----			9:50-----					
2:45-----	0.19	0.60	9:20-----			5:45-----			7:00-----			10:00-----					
2:50-----	0.24	0.60	9:25-----			5:50-----			7:10-----			10:10-----					
2:55-----	0.28	0.48	9:30-----			5:55-----			7:20-----			10:20-----					
3:00-----	0.31	0.36	9:35-----			6:00-----			7:30-----			10:30-----					
3:15-----	0.33	0.08	9:40-----			6:05-----			7:40-----			10:40-----					
3:45-----	0.33	0	9:45-----			6:10-----			7:50-----			10:50-----					
3:50-----	0.36	0.36	9:50-----			6:15-----			8:00-----			11:00-----					
3:55-----	0.37	0.24	9:55-----			6:20-----			8:10-----			11:10-----					
4:00-----	0.38	0.12	10:00-----			6:25-----			8:20-----			11:20-----					
5:05-----	0.39	0.12	10:05-----			6:30-----			8:30-----			11:30-----					
STORM OF MAY 26, 1939			10:10-----			6:35-----			8:40-----			11:40-----					
May 26			10:15-----			6:40-----			8:50-----			11:50-----					
p. m.			10:20-----			6:45-----			9:00-----			12:00-----					
7:40-----	0		10:25-----			6:50-----			9:10-----			12:10-----					
7:45-----	0.02	0.24	10:30-----			6:55-----			9:20-----			12:20-----					
STORM OF MAY 26, 1939			10:35-----			7:00-----			9:30-----			12:30-----					
May 26			10:40-----			7:05-----			9:40-----			12:40-----					
p. m.			10:45-----			7:10-----			9:50-----			12:50-----					
7:40-----	0		10:50-----			7:15-----			10:00-----			1:00-----					
7:45-----	0.02	0.24	10:55-----			7:20-----			10:10-----			1:10-----					
STORM OF MAY 26, 1939			11:00-----			7:25-----			10:20-----			1:20-----					
May 26			11:05-----			7:30-----			10:30-----			1:30-----					
p. m.			11:10-----			7:35-----			10:40-----			1:40-----					
7:40-----	0		11:15-----			7:40-----			10:50-----			1:50-----					
7:45-----	0.02	0.24	11:20-----			7:45-----			11:00-----			2:00-----					
STORM OF MAY 26, 1939			11:25-----			7:50-----			11:10-----			2:10-----					
May 26			11:30-----			7:55-----			11:20-----			2:20-----					
p. m.			11:35-----			8:00-----			11:30-----			2:30-----					
7:40-----	0		11:40-----			8:05-----			11:40-----			2:40-----					
7:45-----	0.02	0.24	11:45-----			8:10-----			11:50-----			2:50-----					
STORM OF MAY 26, 1939			11:50-----			8:15-----			12:00-----			3:00-----					
May 26			11:55-----			8:20-----			12:10-----			3:10-----					
p. m.			12:00-----			8:25-----			12:20-----			3:20-----					
7:40-----	0		12:05-----			8:30-----			12:30-----			3:30-----					
7:45-----	0.02	0.24	12:10-----			8:35-----			12:40-----			3:40-----					
STORM OF MAY 26, 1939			12:15-----			8:40-----			12:50-----			3:50-----					
May 26			12:20-----			8:45-----			1:00-----			4:00-----					
p. m.			12:25-----			8:50-----			1:10-----			4:10-----					
7:40-----	0		12:30-----			8:55-----			1:20-----			4:20-----					
7:45-----	0.02	0.24	12:35-----			9:00-----			1:30-----			4:30-----					
STORM OF MAY 26, 1939			12:40-----			9:05-----			1:40-----			4:40-----					
May 26			12:45-----			9:10-----			1:50-----			4:50-----					
p. m.			12:50-----			9:15-----			2:00-----			5:00-----					
7:40-----	0		12:55-----			9:20-----			2:10-----			5:10-----					
7:45-----	0.02	0.24	1:00-----			9:25-----			2:20-----			5:20-----					
STORM OF MAY 26, 1939			1:05-----			9:30-----			2:30-----			5:30-----					
May 26			1:10-----			9:35-----			2:40-----			5:40-----					
p. m.			1:15-----			9:40-----			2:50-----			5:50-----					
7:40-----	0		1:20-----			9:45-----			3:00-----			6:00-----					
7:45-----	0.02	0.24	1:25-----			9:50-----			3:10-----			6:10-----					
STORM OF MAY 26, 1939			1:30-----			9:55-----			3:20-----			6:20-----					
May 26			1:35-----			10:00-----			3:30-----			6:30-----					
p. m.			1:40-----			10:05-----			3:40-----			6:40-----					
7:40-----	0		1:45-----			10:10-----			3:50-----			6:50-----					
7:45-----	0.02	0.24	1:50-----			10:15-----			4:00-----			7:00-----					
STORM OF MAY 26, 1939			1:55-----			10:20-----			4:10-----			7:10-----					
May 26			2:00-----			10:25-----			4:20-----			7:20-----					
p. m.			2:05-----			10:30-----			4:30-----			7:30-----					
7:40-----	0		2:10-----			10:35-----			4:40-----			7:40-----					
7:45-----	0.02	0.24	2:15-----			10:40-----			4:50-----			7:50-----					
STORM OF MAY 26, 1939			2:20-----			10:45-----			5:00-----			8:00-----					
May 26			2:25-----			10:50-----			5:10-----			8:10-----					
p. m.			2:30-----														



TABLE 63.—Rainfall at station C31R for storms producing run-off, 1938-40—Continued

Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity
STORM OF APR. 16-17, 1940—Continued			STORM OF MAY 17, 1940—Continued			STORM OF JUNE 8, 1940—Continued			STORM OF SEPT. 22-23, 1940—Continued			STORM OF OCT. 2, 1940—Continued		
Apr. 16			May 17			June 8			Sept. 23			Oct. 2		
p. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour
11:45.....	0.02	0.12	5:30.....	0.73	0.12	9:55.....	1.10	0.24	2:55.....	0.48	0.12	4:40.....	0.06	0
:50.....	.03	.12	:35.....	.74	.12	10:00.....	1.11	.12	3:00.....	.49	.12	:50.....	.07	.06
12:00.....	.04	.06	:45.....	.75	.06	:10.....	1.12	.06	:05.....	.52	.36	5:00.....	.08	.06
Apr. 17			6:30.....	.75	0	:20.....	1.13	.06	:10.....	.57	.60	6:12.....	.08	0
a. m.			:40.....	.76	.06	:30.....	1.14	.06	:15.....	.59	.24	:15.....	.09	.20
12:10.....	.05	.06	:50.....	.77	.06	STORM OF JUNE 22, 1940			:20.....	.60	.12	:20.....	.11	.24
:15.....	.06	.12	7:00.....	.78	.06	June 22			:25.....	.61	.12	:30.....	.12	.06
:20.....	.07	.12	:10.....	.79	.06	p. m.			:30.....	.63	.24	:40.....	.13	.06
:25.....	.08	.12	:20.....	.80	.06	5:30.....	0	0.24	:35.....	.65	.24	:50.....	.15	.12
:30.....	.10	.24	:30.....	.82	.12	:35.....	.02	.48	:40.....	.66	.12	7:00.....	.17	.12
:35.....	.13	.36	:40.....	.84	.12	:45.....	.06	0	:50.....	.67	.12	:10.....	.19	.12
:40.....	.15	.24	:50.....	.85	.06	6:25.....	.13	.60	4:00.....	.68	.12	:20.....	.20	.06
:50.....	.19	.24	8:20.....	.85	0	:30.....	.14	.02	:30.....	.69	.02	STORM OF OCT. 9-10, 1940		
1:00.....	.23	.24	:30.....	.86	.06	:35.....	.17	.36	STORM OF SEPT. 24, 1940			Oct. 9		
:10.....	.26	.18	:40.....	.87	.12	:40.....	.18	.12	Sept. 24			p. m.		
:20.....	.29	.18	:50.....	.88	.12	:45.....	.22	.48	1:20.....	0	0.06	11:30.....	0	0.06
:30.....	.31	.12	7:00.....	.89	.06	:50.....	.33	1.32	:30.....	.01	.06	:40.....	.01	.06
:40.....	.33	.12	STORM OF MAY 18, 1940			:55.....	.36	.36	:40.....	.02	.06	:50.....	.02	.06
:50.....	.34	.06	May 18			6:00.....	.37	.06	:45.....	.03	.12	12:00.....	.03	.06
2:00.....	.35	.06	a. m.			STORM OF JULY 27, 1940			:50.....	.04	.12	Oct. 10		
4:00.....	.35	0	1:00.....	0	0.12	July 27			:55.....	.05	.12	a. m.		
5:00.....	.36	.01	:10.....	.02	.12	a. m.			2:00.....	.06	.12	12:05.....	.04	.12
6:00.....	.36	0	:20.....	.04	.12	2:10.....	0	0.06	:05.....	.08	.24	:10.....	.05	.12
7:00.....	.37	.01	:30.....	.06	.12	:20.....	.01	.12	:10.....	.10	.24	:20.....	.07	.12
STORM OF APR. 22, 1940			:40.....	.07	.06	:25.....	.02	.12	:15.....	.11	.12	:30.....	.09	.12
Apr. 22			:50.....	.08	.06	:30.....	.04	.24	:20.....	.12	.12	:40.....	.10	.06
a. m.			2:00.....	.09	.06	:35.....	.06	.24	:25.....	.13	.12	:50.....	.11	.06
7:10.....	0	0.18	3:00.....	.10	.01	3:00.....	.07	.02	:30.....	.14	.12	STORM OF NOV. 8-9, 1940		
:20.....	.03	.18	:30.....	.11	.02	:10.....	.08	.06	Sept. 24			Nov. 8		
:30.....	.06	.18	4:00.....	.12	.02	:15.....	.09	.12	1:20.....	0	0.06	p. m.		
:40.....	.09	.18	:15.....	.13	.04	:20.....	.13	.48	:30.....	.01	.06	10:30.....	0	0.06
:50.....	.12	.18	:30.....	.15	.08	:25.....	.14	.06	:40.....	.02	.06	:40.....	.01	.06
8:00.....	.16	.24	:40.....	.17	.12	:30.....	.15	.06	:45.....	.03	.12	:50.....	.02	.06
:10.....	.20	.24	:50.....	.19	.12	3:00.....	.16	.06	:50.....	.04	.12	11:00.....	.03	.06
:20.....	.24	.24	5:00.....	.21	.12	:10.....	.17	.06	:55.....	.05	.12	:10.....	.04	.06
:25.....	.26	.24	:10.....	.23	.12	:15.....	.18	.12	2:00.....	.06	.12	:15.....	.06	.24
:30.....	.27	.12	:20.....	.25	.12	:20.....	.19	.12	:30.....	.07	.12	:20.....	.08	.24
STORM OF APR. 22, 1940			:30.....	.27	.12	:25.....	.20	.12	:40.....	.08	.12	:25.....	.10	.24
p. m.			:45.....	.28	.04	:30.....	.21	.12	:45.....	.09	.12	:30.....	.11	.12
3:10.....	.27	0	6:00.....	.30	.08	:40.....	.22	.48	:50.....	.10	.12	:40.....	.13	.24
:20.....	.29	.12	:15.....	.31	.04	4:00.....	.23	.06	3:00.....	.11	.24	:50.....	.14	.12
:30.....	.31	.12	:30.....	.32	.04	STORM OF AUG. 12, 1940			:40.....	.12	.12	12:00.....	.15	.06
:45.....	.32	.04	7:00.....	.33	.02	Aug. 12.....	0.06	-----	:50.....	.12	.12	STORM OF OCT. 1, 1940		
4:00.....	.33	.04	STORM OF MAY 20, 1940			STORM OF SEPT. 22-23, 1940			:55.....	.06	.06	Oct. 1		
7:45.....	.33	0	May 20			Sept. 22			2:00.....	.12	.12	a. m.		
:50.....	.35	.24	p. m.			Sept. 22			3:00.....	.13	.06	12:10.....	.17	.06
:55.....	.36	.12	6:05.....	0	0.24	p. m.			4:00.....	.14	.06	:15.....	.18	.12
8:00.....	.37	.12	:10.....	.02	.12	5:00.....	0	0.08	:50.....	.15	.06	:20.....	.19	.12
STORM OF MAY 17, 1940			:20.....	.02	0	:15.....	.02	.06	5:00.....	.01	0.04	:30.....	.22	.18
May 17			:30.....	.03	.06	6:00.....	.03	.04	:15.....	.02	.04	:40.....	.25	.18
a. m.			:40.....	.04	.06	:15.....	.05	.08	:30.....	.03	.04	:50.....	.28	.18
2:10.....	0	0.06	:50.....	.05	.06	:30.....	.07	.08	:45.....	.04	.04	:55.....	.29	.12
:20.....	.01	.06	7:00.....	.07	.12	:45.....	.09	.08	6:00.....	.05	.04	1:00.....	.30	.12
:30.....	.02	.06	:10.....	.09	.12	7:00.....	.10	.02	:15.....	.06	.04	:10.....	.33	.18
:35.....	.04	.24	:20.....	.11	.12	:30.....	.11	.04	:25.....	.07	.06	:20.....	.36	.18
:40.....	.06	.24	:25.....	.12	.12	:45.....	.12	.12	:35.....	.08	.06	:30.....	.39	.18
:50.....	.07	.06	:30.....	.14	.24	11:40.....	.11	0	:45.....	.09	.06	:40.....	.40	.06
3:00.....	.10	.18	:35.....	.16	.24	:45.....	.12	.12	7:00.....	.10	.04	:50.....	.41	.06
:10.....	.13	.18	:40.....	.18	.24	:50.....	.13	.12	:10.....	.11	.06	:55.....	.42	.12
:20.....	.16	.18	:45.....	.20	.24	12:00.....	.15	.24	:20.....	.12	.06	2:00.....	.43	.12
:30.....	.19	.18	:50.....	.21	.12	Sept. 23			:30.....	.13	.06	:10.....	.44	.06
:35.....	.21	.24	STORM OF JUNE 8, 1940			a. m.			:40.....	.15	.12	:15.....	.46	.24
:40.....	.23	.24	June 8			12:05.....	.17	.12	:50.....	.17	.12	:20.....	.48	.12
:45.....	.25	.24	p. m.			:10.....	.20	.36	8:00.....	.18	.06	:30.....	.49	.06
:50.....	.27	.24	8:11.....	0	1.20	:20.....	.23	.18	:30.....	.19	.02	:40.....	.50	.06
:55.....	.30	.36	:15.....	.08	1.44	:30.....	.26	.18	9:00.....	.20	.02	:50.....	.51	.06
4:00.....	.33	.36	:20.....	.20	1.44	:40.....	.29	.18	:10.....	.21	.06	5:45.....	.51	0
:05.....	.34	.12	:25.....	.41	3.15	:45.....	.30	.12	:20.....	.22	.06	6:15.....	.52	.02
:10.....	.36	.24	:30.....	.45	2.40	:50.....	.31	.12	:30.....	.23	.06	7:00.....	.53	.01
:15.....	.38	.24	:35.....	.60	1.80	1:00.....	.32	.06	8:00.....	.24	.02	8:00.....	.54	.01
:20.....	.40	.24	:40.....	.65	1.50	:10.....	.34	.12	9:00.....	.25	.06	9:00.....	.55	.01
:25.....	.42	.24	:45.....	.70	1.00	:20.....	.36	.12	10:00.....	.26	.06	10:35.....	.55	0
:30.....	.45	.36	:50.....	.79	1.08	:30.....	.38	.12	STORM OF OCT. 2, 1940			:40.....	.56	.12
:35.....	.49	.48	:43.....	.84	1.00	:40.....	.40	.12	Oct. 2			:45.....	.57	.12
:40.....	.51	.24	:45.....	.85	.60	:50.....	.41	.06	a. m.			:50.....	.61	.48
:45.....	.54	.36	:50.....	.87	.24	2:06.....	.41	0	12:50.....	0	0.05	:55.....	.64	.36
:50.....	.56	.24	:55.....	.90	.18	:10.....	.42	.15	1:03.....	.01	.05	11:00.....	.66	.24
:55.....	.60	.48	9:00.....	.93	.18	:15.....	.43	.12	:09.....	.01	0	:05.....	.68	.24
5:00.....	.64	.48	:10.....	.96	.18	:20.....	.44	.12	:10.....	.02	.60	:10.....	.69	.12
:05.....	.66	.24	:20.....	1.00	.24	:30.....	.45	.06	:13.....	.04	.40	12:00.....	.70	.01
:10.....	.68	.24	:30.....	1.04	.24	:40.....	.46	.06	:15.....	.05	.30	STORM OF OCT. 2, 1940		
:15.....	.70	.24	:40.....	1.08	.24	:50.....	.47	.06	:25.....	.06	.06	p. m.		
:20.....	.71	.12	:50.....			STORM OF OCT. 2, 1940			STORM OF OCT. 2, 1940			1:00.....	.71	.01
:25.....	.72	.12	STORM OF OCT. 2, 1940			STORM OF OCT. 2, 1940			STORM OF OCT. 2, 1940			STORM OF OCT. 2, 1940		



TABLE 64.—*Rainfall at station C45R for storms producing run-off, 1939-40*

Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity
STORM OF AUG. 1, 1939			STORM OF APR. 9-10, 1940 —Continued			STORM OF MAY 17, 1940			STORM OF MAY 18, 1940— Continued			STORM OF SEPT. 24, 1940— Continued		
Aug. 9			Apr. 10			May 17			May 18			Sept. 24		
a. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour
Aug. 1-----	0.50	-----	1:20-----	0.03	0	2:00-----	0	0.12	4:50-----	0.18	0.12	2:15-----	0.17	0.12
			:25-----	.04	.12	:05-----	.01	-----	5:00-----	.20	.12	:20-----	.18	.12
			:30-----	.06	.24	:10-----	.03	.24	:10-----	.22	.12	:25-----	.19	.12
			:33-----	.08	.40	:15-----	.05	.24	:20-----	.23	.06	:27-----	.20	.30
			:45-----	.08	0	:20-----	.07	.24	:30-----	.24	.06	:30-----	.25	1.00
			:50-----	.09	.12	:25-----	.08	.12	:40-----	.25	.06	:35-----	.34	1.08
			:55-----	.10	.12	:30-----	.09	.12	:50-----	.26	.06	:37-----	.36	.60
			6:40-----	.10	0	:35-----	.10	.12	6:00-----	.27	.06	:40-----	.37	.20
			:50-----	.11	.06	:40-----	.12	.24	:15-----	.28	.04	:45-----	.38	.12
						:45-----	.13	.12	:30-----	.29	.04	:50-----	.40	.24
						:50-----	.14	.12	:45-----	.30	.04	:55-----	.42	.24
						3:00-----	.15	.06	STORM OF MAY 20, 1940			3:00-----	.44	.24
						:10-----	.16	.06				:05-----	.47	.36
						:15-----	.17	.12				:10-----	.50	.36
						:20-----	.19	.24				:15-----	.52	.24
						:25-----	.21	.24				:20-----	.53	.12
						:30-----	.23	.24				:25-----	.54	.12
						:35-----	.24	.12				:30-----	.55	.12
						:40-----	.26	.24				:40-----	.56	.06
						:45-----	.29	.36				:45-----	.58	.24
						:50-----	.31	.24				:50-----	.59	.12
						:55-----	.34	.36				:55-----	.60	.12
						4:00-----	.37	.36				4:00-----	.61	.12
						:05-----	.40	.36				:10-----	.62	.06
						:10-----	.41	.12				:20-----	.63	.06
						:15-----	.42	.12				STORM OF NOV. 8-9, 1940		
						:20-----	.44	.24						
						:25-----	.46	.24						
						:30-----	.49	.36						
						:35-----	.51	.24						
						:40-----	.54	.36						
						:45-----	.56	.24						
						:50-----	.58	.24						
						:55-----	.60	.24						
						5:00-----	.63	.36						
						:05-----	.66	.36						
						:10-----	.68	.24						
						:15-----	.70	.24						
						:20-----	.71	.12						
						:25-----	.72	.12						
						:30-----	.73	.12						
						:40-----	.74	.06						
						:50-----	.75	.06						
						6:35-----	.75	0						
						:40-----	.76	.12						
						:45-----	.77	.12						
						:50-----	.78	.04						
						:10-----	.79	.06						
						:20-----	.80	.06						
						:25-----	.81	.12						
						:30-----	.82	.12						
						:35-----	.84	.24						
						:40-----	.85	.12						
						:45-----	.86	.12						
						8:20-----	.86	0						
						:30-----	.87	.06						
						:45-----	.88	.04						
						STORM OF MAY 18, 1940								



TABLE 65.—*Rainfall at station D31R for storms producing run-off, 1938-40*

[illegible]



TABLE 65.—Rainfall at station D31R for storms producing run-off, 1938-40—Continued

Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	
STORM OF AUG. 7, 1939—Continued			STORM OF MAR. 1-2, 1940—Continued			STORM OF MAY 17, 1940—Continued			STORM OF MAY 20, 1940—Continued			STORM OF SEPT. 22-23, 1940—Continued			
Aug. 7			Mar. 2			May 17			May 20			Sept. 22			
p. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour	
2:15	0.03	0.04	1:00	0.37	0.61	2:25	0.05	0.48	6:40	0.05	0.12	6:30	0.04	0.04	
:30	.04	.04	2:00	.39	.02	:30	.08	.36	:50	.07	.12	:40	.05	.06	
:45	.05	.04	5:00	.39	0	:35	.10	.24	7:00	.09	.12	:45	.06	.12	
:54	.09	.16	6:00	.40	.01	:40	.11	.12	:10	.10	.06	7:00	.07	.04	
3:56	.09	0	7:00	.41	.01	:45	.12	.12	:15	.11	.12	:30	.08	.02	
4:00	.10	.15	10:00	.41	0	:50	.13	.12	:20	.13	.24	:45	.09	0	
:25	.10	0	11:00	.43	.02	:55	.14	.12	:25	.16	.36	11:32	.09	0	
:30	.12	.24	12:00	.45	.02	3:00	.16	.24	:30	.19	.36	:40	.10	.07	
:36	.12	0				:05	.17	.12	:35	.22	.36	:50	.13	.18	
:40	.14	.30				:10	.18	.12	:40	.25	.36	12:00	.16	.18	
:45	.17	.36				:15	.19	.12	:45	.27	.24				
:50	.20	.36				:20	.21	.24							
:50	.21	.06				:25	.23	.24	STORM OF JUNE 8, 1940			Sept. 23			
:09	.21	0				:30	.25	.24	June 8			a. m.			
:20	.22	.06				:35	.27	.24	p. m.			12:10			
:30	.37	.90				:40	.29	.24	8:14			.19			
:35	.46	1.08				:45	.32	.36	0			.22			
:40	.48	.24				:50	.34	.24	0.01			.18			
:50	.49	.06				:55	.36	.24	.01			.25			
:52	.50	.30				4:00	.39	.36	.06			.28			
7:42	.50	0				:05	.41	.24	.75			.31			
:50	.51	.08				:10	.43	.24	2.40			.18			
8:00	.52	.06				:15	.45	.24	3.60			.18			
:15	.53	.04				:20	.48	.36	2.10			.18			
:30	.54	.04				:25	.52	.48	2.70			.18			
:45	.56	.08				:30	.56	.48	1.40			.18			
9:00	.59	.12				:35	.59	.36	1.44			.18			
:10	.61	.12				:40	.62	.36	1.40			.12			
:20	.62	.06				:45	.65	.36	1.44			.12			
:30	.63	.06				:50	.69	.48	.90			.12			
STORM OF AUG. 11, 1939			STORM OF APR. 16-17, 1940			5:00			.76			.12			
Aug. 11			Apr. 16			:05			.78			.12			
p. m.			p. m.			:10			.81			.12			
10:03	0	4.20	11:38	0	0.90	:15			.83			.12			
:05	.14	3.60	:40	.03	.09	:20			.84			.12			
:09	.38	.60	:45	.09	.72	:25			.85			.12			
:10	.39	.60	:50	.11	.24	:30			.86			.12			
:20	.44	.30	:55	.12	.12	:35			.87			.04			
STORM OF AUG. 14-15, 1939			12:00			.13	:40			.88			.12		
Aug. 14			Apr. 17			:45			.90			.24			
p. m.			a. m.			:50			.91			.06			
11:55	0	1.00	12:10	.14	.06	:55			.92			.06			
:58	.05	.30	:20	.15	.06	7:00			.93			.06			
12:00	.06	.30	:30	.19	.24	:20			.94			.06			
Aug. 15			:40	.24	.30	:25			.96			.24			
a. m.			:50	.28	.24	:30			.98			.24			
12:03	.13	1.40	1:00	.32	.24	:35			1.01			.36			
:10	.14	.09	:10	.36	.24	:40			1.02			.12			
:20	.15	.06	:20	.40	.24	:45			1.02			.12			
:30	.18	.18	:25	.41	.12	8:10			1.02			0			
:40	.18	0	:30	.42	.12	:20			1.03			.06			
:50	.19	.03	:40	.43	.06	:30			1.04			.06			
2:00	.20	.02	:50	.44	.06	:40			1.05			.04			
:15	.22	.08	2:00	.45	.06	:45			1.05			.04			
:30	.24	.08	4:00	.45	0	8:10			1.02			0			
STORM OF MAR. 1-2, 1940			5:00	.46	.01	:20			1.03			.06			
Mar. 1			6:00	.47	.01	:30			1.04			.06			
a. m.			STORM OF APR. 22, 1940			:45			1.05			.04			
11:00	0	0.03	Apr. 22			8:10			1.02			0			
12:00	.03	0.03	a. m.			:20			1.03			.06			
STORM OF MAR. 1-2, 1940			3:05			.29	:30			1.04			.04		
Mar. 1			:10			.30	:40			1.05			.12		
a. m.			:15			.31	:50			1.06			.12		
1:00	0	0.03	:20			.33	2:00			1.07			.12		
12:00	.03	0.03	:25			.35	:30			1.07			0		
STORM OF MAR. 1-2, 1940			:30			.36	:45			1.09			.04		
Mar. 1			:40			.37	:50			1.11			.08		
a. m.			4:00			.38	:55			1.13			.08		
1:00	.07	.04	6:00			.38	8:00			1.14			.04		
2:00	.09	.02	8:00			.41	:10			1.16			.08		
3:00	.10	.01	:30			.42	:20			1.18			.12		
4:00	.12	.02	May 17			:30			1.20			.12			
5:00	.14	.02	a. m.			:40			1.22			.12			
6:00	.16	.02	2:10			0	:50			1.26			.12		
7:00	.18	.02	:20			.01	8:00			1.28			.06		
8:00	.21	.03	:30			.02	:10			1.30			.04		
9:00	.24	.03	May 20			:20			1.32			.04			
10:00	.29	.05	p. m.			:30			1.36			.06			
11:00	.32	.03	6:25			0	:40			1.40			.08		
:30	.35	.06	:30			.03	:50			1.44			.12		
12:00	.36	.02	:40			.06	8:00			1.48			.16		
STORM OF APR. 10, 1940			:50			.09	:10			1.52			.20		
Apr. 10			2:10			.12	:20			1.56			.24		
a. m.			:20			.15	:30			1.60			.28		
1:21	0	1.80	:30			.18	:40			1.64			.32		
:22	.03	.80	:40			.20	:50			1.68			.36		
:25	.07	.80	:50			.22	8:00			1.72			.40		
:28	.10	.60	8:00			.24	:10			1.76			.44		
:30	.11	.30	:20			.26	:20			1.80			.48		
:35	.18	.84	:30			.28	:30			1.84			.52		
:40	.21	.36	:40			.30	:40			1.88			.56		
:50	.22	.06	:50			.32	:50			1.92			.60		
6:00	.22	0	8:00			.34	8:00			1.96			.64		
:30	.23	.02	:10			.36	:10			2.00			.68		
:45	.24	.04	:20			.38	:20			2.04			.72		
STORM OF APR. 16-17, 1940			:30			.40	:30			2.08			.76		
Apr. 16			:40			.42	:40			2.12			.80		
p. m.			:50			.44	:50			2.16			.84		
11:38	0	0.90	8:00			.46	8:00			2.20			.88		
:40	.03	.09	:10			.48	:10			2.24			.92		
:45	.09	.72	:20			.50	:20			2.28			.96		
:50	.11	.24	:30			.52	:30			2.32			1.00		
:55	.12	.12	:40			.54	:40			2.36			1.04		
12:00	.13	.12	:50			.56	:50			2.40			1.08		
STORM OF APR. 22, 1940			8:00			.58	8:00			2.44			1.12		
Apr. 22			:10			.60	:10			2.48			1.16		
a. m.			:20			.62	:20			2.52			1.20		
3:05	.29	0	:30			.64	:30			2.56			1.24		
:10	.30	.12	:40			.66	:40			2.60			1.28		
:15	.31	.12	:50			.68	:50			2.64			1.32		
:20	.33	.24	8:00			.70	8:00			2.68			1.36		
:25	.35	.24	:10			.72	:10			2.72			1.40		
:30	.36	.12	:20			.74	:20			2.76			1.44		
:40	.37	.06	:30			.76	:30			2.80			1.48		
:50	.38	.03	:40			.78	:40			2.84			1.52		
4:00	.38	0	:50			.80	:50			2.88			1.56		
6:00	.38	.03	8:00			.82	8:00			2.92			1.60		
7:00</															



TABLE 65.—Rainfall at station D31R for storms producing run-off, 1938-40--Continued

Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity
STORM OF NOV. 8-9, 1940—Continued			STORM OF NOV. 8-9, 1940—Continued			STORM OF NOV. 8-9, 1940—Continued			STORM OF NOV. 8-9, 1940—Continued			STORM OF NOV. 8-9, 1940—Continued		
Nov. 8			Nov. 8			Nov. 9			Nov. 9			Nov. 9		
<i>p. m.</i>	<i>Inches</i>	<i>per hour</i>	<i>p. m.</i>	<i>Inches</i>	<i>per hour</i>	<i>a. m.</i>	<i>Inches</i>	<i>per hour</i>	<i>a. m.</i>	<i>Inches</i>	<i>per hour</i>	<i>a. m.</i>	<i>Inches</i>	<i>per hour</i>
10:40-----	0.02	0.12	12:00-----	0.16	.12	1:05-----	0.31	0.12	6:00-----	0.53	0.02	10:55-----	0.69	0.36
:45-----	.03	.12				:10-----	.32	.12	7:00-----	.54	.01	11:00-----	.72	.36
:50-----	.04	.12	Nov. 9			:15-----	.33	.12	:30-----	.55	.02	:05-----	.73	.12
11:00-----	.05	.06	<i>a. m.</i>			:20-----	.35	.24	8:00-----	.56	.02	:10-----	.74	.12
:10-----	.06	.06	12:15-----	.17	.04	:30-----	.37	.12	:30-----	.57	.02	:20-----	.75	.06
:20-----	.07	.06				2:00-----	.43	.12	10:30-----	.57	0			
:25-----	.09	.24	:20-----	.20	.36	:30-----	.49	.12	:35-----	.58	.12	<i>p. m.</i>		
:30-----	.12	.36	:30-----	.23	.18	3:00-----	.50	.02	:40-----	.60	.24	12:30-----	.75	0
:40-----	.13	.06	:40-----	.26	.18	5:00-----	.50	0	:45-----	.61	.12	1:00-----	.76	.02
:50-----	.14	.06	:50-----	.29	.18	:15-----	.51	.04	:50-----	.66	.60	:30-----	.77	.02
:55-----	.15	.12	1:00-----	.30	.06	:30-----	.52	.04						

TABLE 66.—Rainfall at station D45R for storms producing run-off, 1939-40

Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity
STORM OF AUG. 1, 1939			STORM OF APR. 16-17, 1940—Continued			STORM OF MAY 7, 1940			STORM OF MAY 17, 1940—Continued			STORM OF MAY 18, 1940—Continued		
Aug. 1-----	0.32	<i>Inches per hour</i>	Apr. 16			May 7			May 17			May 18		
			<i>p. m.</i>	<i>Inches</i>	<i>per hour</i>	<i>a. m.</i>	<i>Inches</i>	<i>per hour</i>	<i>a. m.</i>	<i>Inches</i>	<i>per hour</i>	<i>a. m.</i>	<i>Inches</i>	<i>per hour</i>
			11:45-----	0.13	0.60	8:40-----	0		3:50-----	0.27	0.36	5:45-----	0.27	0.08
			:50-----	.17	.48	:45-----	.04	0.48	:55-----	.30	.36	6:00-----	.28	.04
			12:00-----	.18	.06	:47-----	.05	.30	4:00-----	.33	.36	:15-----	.29	.04
			Apr. 17			:50-----	.06	.20	:05-----	.34	.12	:30-----	.30	.04
Aug. 7			<i>a. m.</i>			:55-----	.06	0	:10-----	.36	.24	:45-----	.31	.04
<i>p. m.</i>			12:05-----	.19	.12	9:00-----	.07	.12	:15-----	.38	.24			
1:40-----	0	0.06	:10-----	.20	.12	:05-----	.11	.48	:20-----	.40	.24	STORM OF MAY 20, 1940		
:50-----	.01	.06	:15-----	.21	.12	:15-----	.11	0	:25-----	.42	.24	May 20		
2:00-----	.03	.06	:20-----	.23	.24	:30-----	.12	.04	:30-----	.46	.48	<i>p. m.</i>		
:15-----	.04	.04	:30-----	.28	.30	:45-----	.13	.04	:35-----	.48	.24	6:00-----	0	0.06
:30-----	.05	.04	:40-----	.33	.30	10:00-----	.15	.08	:40-----	.51	.36	:10-----	.02	.06
:45-----	.06	.04	:50-----	.38	.30	:15-----	.16	.04	:45-----	.54	.36	:20-----	.03	.06
3:00-----	.09	.12	1:00-----	.42	.24	STORM OF MAY 13, 1940			:50-----	.56	.24	:30-----	.04	.06
:02-----	.11	.60	:10-----	.46	.24	May 13			:55-----	.59	.36	:40-----	.05	.06
4:04-----	.11	0	:20-----	.50	.24	<i>p. m.</i>			5:00-----	.62	.36	:40-----	.05	.06
:10-----	.13	.20	:25-----	.51	.12	5:22-----	0	0.60	:05-----	.64	.24	:50-----	.06	.06
:34-----	.13	0	:30-----	.52	.12	:23-----	.01	0.60	:10-----	.66	.24	7:00-----	.08	.24
:38-----	.15	.30	:35-----	.53	.12	:25-----	.01	0	:15-----	.68	.24	:10-----	.09	.06
:44-----	.15	0	:45-----	.54	.06	:28-----	.06	1.00	:20-----	.70	.24	:15-----	.10	.12
:50-----	.19	.40	2:00-----	.55	.04	:30-----	.07	.30	:25-----	.71	.12	:20-----	.12	.24
5:00-----	.24	.30	STORM OF APR. 22, 1940			:35-----	.09	.24	:30-----	.72	.12	:25-----	.13	.12
:02-----	.25	.30	Apr. 22			8:32-----	.09	0	:40-----	.73	0	:30-----	.16	.36
:14-----	.25	0	<i>a. m.</i>			:35-----	.10	.20	:45-----	.74	.12	:35-----	.19	.36
:20-----	.26	.10	7:05-----	0		:45-----	.10	0	:50-----	.76	.06	:40-----	.22	.36
:26-----	.27	.10	:10-----	.03	0.36	:50-----	.11	.12	7:00-----	.77	.06	:43-----	.24	.40
:30-----	.30	.45	:20-----	.07	.24	:55-----	.12	.12	:10-----	.78	.06	STORM OF JUNE 8, 1940		
:35-----	.48	2.16	:30-----	.11	.24	9:00-----	.13	.12	:20-----	.79	.06	June 8-----	1.14	
:37-----	.56	2.40	:40-----	.15	.24	:15-----	.13	0	:30-----	.81	.12	STORM OF SEPT. 23-24, 1940		
	.81		:50-----	.19	.24	:30-----	.14	.04	:40-----	.83	.12	Sept. 23		
STORM OF AUG. 11, 1939			:55-----	.21	.24	10:00-----	.15	.02	8:20-----	.83	0	<i>p. m.</i>		
Aug. 11			8:00-----	.22	.12	:35-----	.17	.12	:25-----	.84	.12	11:50-----	0	
<i>p. m.</i>			:05-----	.24	.24	:40-----	.18	.12	:30-----	.85	.12	Sept. 24		
10:05-----	0		:10-----	.27	.36	:45-----	.19	.12				<i>a. m.</i>		
:06-----	.04	2.40	:15-----	.29	.24	STORM OF MAY 17, 1940			May 18			12:15-----	.01	0.02
:07-----	.10	3.60	:20-----	.31	.24	May 17			<i>a. m.</i>			:30-----	.02	.04
:10-----	.17	1.40	STORM OF APR. 22, 1940			<i>a. m.</i>			12:30-----	0		:45-----	.04	.08
:11-----	.21	2.40	Apr. 22			2:05-----	0	0.36	:45-----	.01	0.04	:30-----	.05	.04
:15-----	.22	.15	<i>p. m.</i>			:10-----	.03	0.36	:50-----	.02	.04	:45-----	.06	.04
:20-----	.23	.12	3:10-----	0	0.12	:20-----	.04	.06	1:00-----	.02	.04	2:00-----	.07	.04
:23-----	.25	.40	:15-----	.02	.12	:25-----	.05	.12	:15-----	.04	.08	3:00-----	.08	.01
STORM OF APR. 9-10, 1940			:20-----	.03	.12	:30-----	.07	.24	:30-----	.09	.02	:35-----	.05	.12
Apr. 9-10---	0.19		:25-----	.04	.12	:35-----	.08	.12	:45-----	.10	.04	:40-----	.06	.12
STORM OF APR. 16-17, 1940			:40-----	.04	0	:40-----	.09	.12	4:00-----	.12	.08	:45-----	.07	.12
Apr. 16			:50-----	.05	.06	:50-----	.10	.06	:15-----	.14	.08	:50-----	.08	.12
<i>p. m.</i>			4:00-----	.05	0	3:00-----	.11	.06	:30-----	.15	.04	:55-----	.09	.12
11:33-----	0	0.60	5:00-----	.06	.01	:10-----	.12	.06	:45-----	.17	.08	2:00-----	.11	.24
:35-----	.02	.06	7:38-----	.06	0	:15-----	.13	.12	:50-----	.18	.12	:10-----	.13	.12
:40-----	.08	.72	:40-----	.07	.30	:20-----	.14	.12	:55-----	.19	.12	:20-----	.15	.12
			:45-----	.08	.12	:25-----	.16	.24	5:00-----	.21	.12	:30-----	.17	.12
			:50-----	.09	.12	:30-----	.17	.12	:05-----	.21	.12	:33-----	.18	.20
			8:00-----	.10	.12	:35-----	.19	.24	:15-----	.22	.12	:35-----	.20	.60
						:40-----	.21	.24	:10-----	.23	.12	:40-----	.25	.60
						:45-----	.24	.36	:30-----	.25	.08	:45-----	.27	.24



TABLE 66.—Rainfall at station D45R for storms producing run-off, 1939-40—Continued

Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity
STORM OF SEPT. 23-24, 1940—Continued			STORM OF SEPT. 23-24, 1940—Continued			STORM OF NOV. 8-9, 1940—Continued			STORM OF NOV. 8-9, 1940—Continued			STORM OF NOV. 8-9, 1940—Continued		
Sept. 24			Sept. 24			Nov. 8			Nov. 9			Nov. 9		
a. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour
2:50-----	0.29	0.24	4:15-----	0.50	0.04	11:15-----	0.08	0.24	12:40-----	0.27	0.18	5:45-----	0.51	0.01
:55-----	.31	.24				:20-----	.09	.12	:50-----	.30	.18	6:00-----	.52	.04
3:00-----	.32	.21	STORM OF NOV. 8-9, 1940			:25-----	.10	.12	1:00-----	.31	.06	:15-----	.53	.04
:05-----	.35	.36				:30-----	.12	.24	:10-----	.33	.12	7:00-----	.53	0
:10-----	.38	.36				:35-----	.13	.12	:20-----	.35	.12	8:00-----	.54	.01
:15-----	.40	.24				:40-----	.14	.12	:30-----	.37	.12	:30-----	.55	.02
:20-----	.41	.12				:50-----	.15	.06	:40-----	.39	.12	10:35-----	.55	0
:25-----	.42	.12	Nov. 8			12:00-----	.16	.06	:50-----	.41	.12	:40-----	.57	.24
:30-----	.43	.12	p. m.						2:00-----	.43	.12	:45-----	.58	.12
:35-----	.44	.12	10:35-----	0		Nov. 9			:10-----	.45	.12	:50-----	.61	.36
:40-----	.45	.12	:40-----	.01	0.12	a. m.			:20-----	.47	.12	:55-----	.65	.48
:45-----	.46	.12	:45-----	.03	.24	12:05-----	.17	.12	:30-----	.48	.06	11:00-----	.68	.36
:50-----	.47	.12	:50-----	.04	.12	:10-----	.18	.12	:40-----	.49	.06	:05-----	.70	.24
:55-----	.48	.12	11:00-----	.05	.06	:20-----	.21	.18	:50-----	.50	.03	:15-----	.71	.06
4:00-----	.49	.12	:10-----	.06	.06	:30-----	.24	.18	4:30-----	.50	0	:25-----	.72	.06

TABLE 67.—Rainfall at station E30R for storms producing run-off, 1939-40

Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity
STORM OF APR. 9-10, 1939			STORM OF MAY 22, 1939			STORM OF JUNE 1-2, 1939—Continued			STORM OF JUNE 20, 1939			STORM OF JUNE 25, 1939—Continued		
Apr. 9			May 22			June 1			June 20			June 25		
p. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour
10:15-----	0		2:34-----	0		11:50-----	0.34	0	1:08-----	0	0.90	2:30-----	0.44	0.06
:30-----	.02	0.08	:35-----	.02	1.20	12:00-----	.35	.06	:10-----	.03		:45-----	.46	.08
:45-----	.04	.08	:40-----	.13	1.32				:20-----	.09	.36	3:00-----	.48	.08
11:00-----	.05	.04	:45-----	.25	1.44	June 2			:30-----	.21	.72	:15-----	.52	.16
:30-----	.06	.02	:50-----	.41	1.92	a. m.			:40-----	.28	.42	:30-----	.56	.16
12:00-----	.07	.02	:55-----	.51	1.20	12:10-----	.36	.06	:50-----	.32	.24	:45-----	.59	.12
			3:00-----	.54	.36	4:50-----	.36	0	2:00-----	.35	.18	4:00-----	.60	.04
Apr. 10			:43-----	.55	.01	5:00-----	.37	.06	:20-----	.38	.09	:50-----	.61	.02
a. m.			:45-----	.56	.30	:30-----	.38	.02	4:08-----	.38	0	5:00-----	.62	.02
12:15-----	.08	.04	:50-----	.57	.12				:10-----	.39	.30			
:30-----	.10	.08	:54-----	.58	.15				:14-----	.40	.15	STORM OF JULY 1, 1939		
:45-----	.14	.16	STORM OF MAY 26, 1939			STORM OF JUNE 9-10, 1939			:15-----	.42	1.20	July 1		
1:00-----	.18	.16				June 9			:20-----	.50	.96	a. m.		
:15-----	.22	.16	May 26			p. m.			:25-----	.54	1.20	1:41-----	0	
:30-----	.26	.16	p. m.			8:53-----	0		:30-----	.55	.20	:50-----	.02	0.13
:45-----	.33	.28	7:37-----	0		9:00-----	.03	0.26	:35-----	.58	.36	2:00-----	.04	.12
2:00-----	.38	.20	:40-----	.06	1.20	:10-----	.08	.30	:40-----	.66	.96	:58-----	.04	0
:15-----	.42	.16	:50-----	.09	.18	:20-----	.13	.30	:45-----	.68	.24	3:00-----	.07	.90
:30-----	.45	.12	8:00-----	.12	.18	:30-----	.17	.24	5:00-----	.71	.36	:08-----	.11	.30
:45-----	.46	.04	:10-----	.15	.18	:40-----	.23	.36				4:20-----	.11	0
3:00-----	.47	.04	:20-----	.18	.18	:50-----	.26	.18	STORM OF JUNE 21, 1939			:30-----	.12	.06
:15-----	.48	.04	:30-----	.22	.24	:55-----	.27	.12	June 21			:45-----	.14	.08
STORM OF MAY 20, 1939			:40-----	.24	.12	10:10-----	.27	0	p. m.			:58-----	.16	.09
May 20			:50-----	.27	.18	:20-----	.29	.12	7:30-----	0		5:00-----	.20	1.20
a. m.			9:00-----	.31	.24	:30-----	.30	.06	:34-----	.01	0.15	:05-----	.26	.72
2:40-----	0		:10-----	.33	.12	11:00-----	.30	0	:40-----	.03	1.20	:11-----	.28	.20
:42-----	.02	0.60	:20-----	.35	.12	:10-----	.31	.06	:45-----	.09	.72	:16-----	.42	1.68
:44-----	.06	1.20	:30-----	.36	.15	:20-----	.34	.18	:50-----	.13	.48	:20-----	.51	1.35
:45-----	.07	.60	STORM OF JUNE 1-2, 1939			:30-----	.35	.06	:55-----	.23	1.20	:25-----	.53	.24
:50-----	.11	.48	June 1			12:00-----	.36	.02	8:00-----	.38	.60	:26-----	.54	.60
:55-----	.15	.48	p. m.						:10-----	.39	.06	:30-----	.54	0
3:00-----	.16	.12	4:17-----	0		STORM OF JUNE 12, 1939						6:00-----	.55	.02
:10-----	.17	.06	:20-----	.02	0.40	June 12						:30-----	.56	.02
:17-----	.17	0	:30-----	.04	.12	p. m.			STORM OF JUNE 25, 1939					
:20-----	.18	.06	5:55-----	.04	0	9:14-----	0	0.10	June 25			July 4		
:30-----	.19	.06	6:00-----	.05	.12	:20-----	.01		a. m.			p. m.		
:31-----	.20	.60	:05-----	.08	.36	:25-----	.13	1.44	1:10-----	0		6:12-----	0	
:35-----	.38	2.70	:10-----	.14	.72	:30-----	.22	1.08	:15-----	.04	0.48	:14-----	.02	0.60
:40-----	.48	1.20	:15-----	.16	.24	:32-----	.23	.30	:20-----	.16	1.44	:17-----	.02	0
:50-----	.54	.36	:20-----	.22	.72	STORM OF JUNE 15, 1939			:25-----	.25	1.08	:18-----	.04	1.20
6:00-----	.56	.12	:25-----	.26	.48	June 15			:30-----	.30	.60	11:30-----	.04	0
:10-----	.58	.12	:30-----	.28	.24	a. m.			:35-----	.35	.60	:46-----	.05	.04
:20-----	.60	.12	:40-----	.29	.06	3:27-----	0		:40-----	.40	.60	:50-----	.08	.45
:30-----	.62	.12	:50-----	.30	.06	:30-----	.05	1.00	:50-----	.41	.06	:55-----	.26	2.16
:45-----	.64	.08	7:00-----	.32	.12	:38-----	.07	.15	2:00-----	.42	.06	12:00-----	.28	.24
7:00-----	.65	.04	:10-----	.33	.06				:10-----	.42	0	July 5		
:15-----	.66	.04	:20-----	.34	.06				:20-----	.43	.06	a. m.		
:30-----	.67	.04										12:15-----	.29	.04



TABLE 67.—Rainfall at station E30R for storms producing run-off, 1939-40—Continued

Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity
STORM OF AUG. 1, 1939			STORM OF MAR. 1-2, 1940—Continued			STORM OF APR. 22, 1940—Continued			STORM OF MAY 18, 1940			STORM OF JUNE 22, 1940—Continued		
Aug. 1			Mar. 1			Apr. 22			May 18			June 22		
p. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour
7:55-----	0		7:00-----	0.13	0.04	7:40-----	0.14	0.24	12:50-----	0		6:15-----	0.26	0.60
8:00-----	.09	1.08	:30-----	.16	.06	:45-----	.15	.12	1:00-----	.01	0.06	:20-----	.29	.36
:05-----	.11	.24	8:00-----	.17	.02	:50-----	.16	.12	:15-----	.03	.08	:25-----	.35	.72
:10-----	.12	.12	:30-----	.18	.02	:55-----	.18	.24	:30-----	.05	.08	:30-----	.42	.84
STORM OF AUG. 7, 1939			9:00-----	.20	.04	8:00-----	.20	.24	:45-----	.06	.04	:32-----	.44	.60
Aug. 7			:30-----	.23	.06	:05-----	.23	.36	2:00-----	.07	.04	:35-----	.44	0
p. m.			10:00-----	.25	.04	:10-----	.25	.24	:30-----	.08	.02	:40-----	.47	.36
1:44-----	0	0.15	11:00-----	.28	.03	:15-----	.27	.24	3:00-----	.09	.02	:42-----	.49	.60
2:00-----	.04		12:00-----	.31	.03	:20-----	.29	.24	:30-----	.09	0	:45-----	.50	.20
:36-----	.04	0	STORM OF APR. 10, 1940			p. m.			:45-----	.10	.04	:50-----	.51	.12
:40-----	.05	.15	Apr. 10			3:00-----	.29	0	4:00-----	.11	.04	7:00-----	.52	.06
:50-----	.09	.24	a. m.			:03-----	.31	.40	STORM OF MAY 20, 1940			STORM OF JULY 26-27, 1940		
:54-----	.12	.45	1:00-----	.33	.02	:12-----	.31	0	May 20			July 26		
3:50-----	.12	0	2:00-----	.35	.02	:15-----	.32	.20	p. m.			p. m.		
4:00-----	.13	.06	3:00-----	.35	0	:17-----	.33	.30	5:55-----	0		9:34-----	0	0.60
:15-----	.14	.04	4:00-----	.36	.01	:20-----	.34	.20	6:00-----	.01	0.12	:35-----	.01	0.60
:30-----	.15	.04	5:00-----	.37	.01	:25-----	.38	.48	:05-----	.02	.12	:38-----	.06	1.00
:36-----	.16	.10	6:00-----	.38	.01	:30-----	.39	.12	:10-----	.03	.12	:40-----	.07	.12
:45-----	.23	.47	7:00-----	.39	.01	:35-----	.39	0	:15-----	.04	.12	:50-----	.08	.06
:50-----	.26	.12	9:00-----	.40	.01	:40-----	.41	.24	:25-----	.04	0	STORM OF AUG. 12, 1940		
:15-----	.27	.04	10:00-----	.40	0	:45-----	.42	.12	:30-----	.06	.24	Aug. 12		
:20-----	.29	.24	11:00-----	.44	.04	7:45-----	.42	0	:40-----	.07	.06	a. m.		
:30-----	.46	1.02	12:00-----	.45	.01	:50-----	.44	.24	:50-----	.08	.06	6:30-----	0	0.02
:45-----	.52	.24	STORM OF APR. 16-17, 1940			:55-----	.46	.24	:55-----	.27	.24	7:00-----	.01	0.02
6:00-----	.54	.08	Apr. 16			3:00-----	.20	.12	STORM OF JUNE 8, 1940			:25-----	.02	.02
7:35-----	.54	0	Apr. 17			:05-----	.21	.12	June 8			:30-----	.04	.24
:45-----	.57	.18	p. m.			:10-----	.23	.24	p. m.			8:00-----	.05	.02
8:00-----	.60	.12	11:30-----	0	0.12	:15-----	.24	.12	8:13-----	0	0.60	9:00-----	.05	0
:15-----	.61	.04	:35-----	.01	0.12	:20-----	.25	.12	:15-----	.03	.80	:15-----	.06	.04
:30-----	.62	.04	:40-----	.03	.24	:25-----	.27	.24	:20-----	.09	.80	:30-----	.08	.08
:45-----	.63	.04	:45-----	.04	.12	:30-----	.29	.24	:25-----	.25	3.20	:45-----	.10	.08
9:00-----	.66	.12	:50-----	.05	.12	:35-----	.31	.24	:30-----	.38	2.60	7:00-----	.10	0
:15-----	.68	.08	12:00-----	.05	.12	:40-----	.33	.24	:35-----	.43	1.50	:15-----	.11	.04
:30-----	.69	.04	STORM OF APR. 22, 1940			:45-----	.35	.24	:40-----	.48	1.50	:30-----	.12	.04
STORM OF AUG. 11, 1939			Apr. 22			:50-----	.36	.36	:45-----	.50	1.44	:45-----	.13	.04
Aug. 11-----	0.39	-----	Apr. 23			:55-----	.37	.06	:50-----	.55	.48	:50-----	.15	.12
STORM OF AUG. 14-15, 1939			p. m.			6:30-----	.38	.36	STORM OF JUNE 22, 1940			:55-----	.18	.18
Aug. 14			11:30-----	0	0.12	:05-----	.40	.24	June 22			:55-----	.18	.18
p. m.			:35-----	.01	0.12	:10-----	.42	.24	p. m.			:55-----	.18	.18
11:19-----	0	1.80	:40-----	.03	.24	:15-----	.44	.24	5:33-----	0	1.20	:55-----	.18	.18
:50-----	.03		:45-----	.04	.12	:20-----	.46	.24	:35-----	.04	1.20	:55-----	.18	.18
:55-----	.14	1.32	:50-----	.05	.12	:25-----	.48	.24	:38-----	.09	1.00	:55-----	.18	.18
12:00-----	.15	.12	12:00-----	.05	.12	:30-----	.51	.24	:40-----	.10	.60	:55-----	.18	.18
STORM OF AUG. 15			Apr. 23			:35-----	.54	.36	:44-----	.10	0	:55-----	.18	.18
Aug. 15			Apr. 24			:40-----	.56	.24	:45-----	.11	.60	:55-----	.18	.18
a. m.			p. m.			:45-----	.59	.36	:50-----	.16	.60	:55-----	.18	.18
12:22-----	.16	.03	11:30-----	0	0.12	:50-----	.62	.36	:55-----	.22	.72	:55-----	.18	.18
:26-----	.19	.45	:35-----	.01	0.12	:55-----	.64	.24	6:00-----	.23	.12	:55-----	.18	.18
:35-----	.20	.07	:40-----	.03	.24	5:00-----	.67	.36	:10-----	.23	0	:55-----	.18	.18
1:00-----	.20	0	:45-----	.04	.12	:05-----	.70	.36	:13-----	.24	.20	:55-----	.18	.18
:30-----	.21	.02	:50-----	.05	.12	:10-----	.72	.24	STORM OF JUNE 22, 1940			:55-----	.18	.18
2:00-----	.22	.02	:55-----	.06	.12	:15-----	.75	.36	June 22			:55-----	.18	.18
:15-----	.24	.08	1:00-----	.06	.12	:20-----	.77	.24	p. m.			:55-----	.18	.18
:30-----	.25	.04	1:00-----	.06	.12	:25-----	.78	.12	5:33-----	0	1.20	:55-----	.18	.18
STORM OF MAR. 1-2, 1940			1:00-----	.06	.12	:30-----	.79	.12	:35-----	.04	1.20	:55-----	.18	.18
Mar. 1			1:00-----	.06	.12	:35-----	.80	.12	:38-----	.09	1.00	:55-----	.18	.18
a. m.			1:00-----	.06	.12	:40-----	.82	.06	:40-----	.10	.60	:55-----	.18	.18
11:15-----	0	0.04	1:00-----	.06	.12	:45-----	.83	.06	:44-----	.10	0	:55-----	.18	.18
:30-----	.01		1:00-----	.06	.12	:50-----	.85	.12	:45-----	.11	.60	:55-----	.18	.18
12:00-----	.02	.02	1:00-----	.06	.12	:55-----	.87	.12	:50-----	.16	.60	:55-----	.18	.18
STORM OF MAR. 1-2, 1940			1:00-----	.06	.12	6:30-----	.88	.06	:55-----	.22	.72	:55-----	.18	.18
Mar. 1			1:00-----	.06	.12	:05-----	.89	.04	6:00-----	.23	.12	:55-----	.18	.18
a. m.			1:00-----	.06	.12	:10-----	.90	.12	:10-----	.23	0	:55-----	.18	.18
11:15-----	0	0.04	1:00-----	.06	.12	:15-----	.92	.24	:13-----	.24	.20	:55-----	.18	.18
:30-----	.01		1:00-----	.06	.12	:20-----	.94	.24	STORM OF JUNE 22, 1940			:55-----	.18	.18
12:00-----	.02	.02	1:00-----	.06	.12	:25-----	.95	.12	June 22			:55-----	.18	.18
STORM OF MAR. 1-2, 1940			1:00-----	.06	.12	:30-----	.96	.04	p. m.			:55-----	.18	.18
Mar. 1			1:00-----	.06	.12	:35-----	.96	.04	5:33-----	0	1.20	:55-----	.18	.18
a. m.			1:00-----	.06	.12	:40-----	.97	.06	:35-----	.04	1.20	:55-----	.18	.18
11:15-----	0	0.04	1:00-----	.06	.12	:45-----	.98	.04	:38-----	.09	1.00	:55-----	.18	.18
:30-----	.01		1:00-----	.06	.12	6:30-----	.83	0	:40-----	.10	.60	:55-----	.18	.18
12:00-----	.02	.02	1:00-----	.06	.12	:05-----	.85	.12	:44-----	.10	0	:55-----	.18	.18
STORM OF MAR. 1-2, 1940			1:00-----	.06	.12	:10-----	.87	.12	:45-----	.11	.60	:55-----	.18	.18
Mar. 1			1:00-----	.06	.12	:15-----	.88	.06	:50-----	.16	.60	:55-----	.18	.18
a. m.			1:00-----	.06	.12	:20-----	.89	.04	:55-----	.22	.72	:55-----	.18	.18
11:15-----	0	0.04	1:00-----	.06	.12	:25-----	.90	.12	6:00-----	.23	.12	:55-----	.18	.18
:30-----	.01		1:00-----	.06	.12	:30-----	.92	.24	:10-----	.23	0	:55-----	.18	.18
12:00-----	.02	.02	1:00-----	.06	.12	:35-----	.94	.24	:13-----	.24	.20	:55-----	.18	.18
STORM OF MAR. 1-2, 1940			1:00-----	.06	.12	:40-----	.95	.12	STORM OF JUNE 22, 1940			:55-----	.18	.18
Mar. 1			1:00-----	.06	.12	:45-----	.96	.04	June 22			:55-----	.18	.18
a. m.			1:00-----	.06	.12	:50-----	.96	.04	p. m.			:55-----	.18	.18
11:15-----	0	0.04	1:00-----	.06	.12	6:30-----	.83	0	5:33-----	0	1.20	:55-----	.18	.18
:30-----	.01		1:00-----	.06	.12	:05-----	.85	.12	:35-----	.04	1.20	:55-----	.18	.18
12:00-----	.02	.02	1:00-----	.06	.12	:10-----	.87	.12	:38-----	.09	1.00	:55-----	.18	.18
STORM OF MAR. 1-2, 1940			1:00-----	.06	.12	:15-----	.88	.06	:40-----	.10	.60	:55-----	.18	.18
Mar. 1			1:00-----	.06	.12	:20-----	.89	.04	:44-----	.10	0	:55-----	.18	.18
a. m.			1:00-----	.06	.12	:25-----	.90	.12	:45-----	.11	.60	:55-----	.18	.18
11:15-----	0	0.04	1:00-----	.06	.12	:30-----	.92	.24	:50-----	.16	.60	:55-----	.18	.18
:30-----	.01		1:00-----	.06	.12	:35-----	.94	.24	:55-----	.22	.72	:55-----	.18	.18
12:00-----	.02	.02	1:00-----	.06	.12	:40-----	.95	.12	6:00-----	.23	.12	:55-----	.18	.18
STORM OF MAR. 1-2, 1940			1:00-----	.06	.12	:45-----	.96	.04	:10-----	.23	0	:55-----	.18	.18
Mar. 1			1:00-----	.06	.12	:50-----	.96	.04	:13-----	.24	.20	:55-----	.18	.18
a. m.			1:00-----	.06	.12	6:30-----	.83	0	STORM OF JUNE 22, 1940			:55-----	.18	.18
11:15-----	0	0.04	1:00-----	.06	.12	:05-----	.85	.12	June 22			:55-----	.18	.18
:30-----	.01		1:00-----	.06	.12	:10-----	.87	.12	p. m.			:55-----	.18	.18
12:00-----	.02	.02	1:00-----	.06	.12	:15-----	.88	.06	5:33-----	0	1.20	:55-----	.18	.18
STORM OF MAR. 1-2, 1940			1:00-----	.06	.12	:20-----	.89	.04	:35-----	.04	1.20	:55-----	.18	.18
Mar. 1			1:00-----	.06	.12	:25-----	.90	.12	:38-----	.09	1.00	:55-----	.18	.18
a. m.			1:00-----	.06	.12	:30-----	.92	.24	:40-----	.10	.60	:55-----	.18	.18
11:15-----	0	0.04	1:00-----	.06	.12	:35-----	.94	.24	:44-----	.10	0	:55-----	.18	.18
:30-----	.01		1:00-----	.06	.12	:40-----								



TABLE 67.—Rainfall at station E30R for storms producing run-off, 1939-40—Continued

Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity
STORM OF SEPT. 22-23, 1940—Continued			STORM OF SEPT. 23-24, 1940—Continued			STORM OF OCT. 1, 1940—Continued			STORM OF OCT. 9-10, 1940			STORM OF NOV. 8-9, 1940—Continued		
Sept. 23			Sept. 24			Oct. 1			Oct. 10			Nov. 9		
a. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour
1:40-----	0.43	0.06	1:45-----	0.07	0.08	7:15-----	0.14	0.04	11:10-----	0	0.06	12:20-----	0.20	0.18
:50-----	.44	.06	2:00-----	.09	.08	:25-----	.15	.06	:20-----	.01	.06	:30-----	.23	.18
2:05-----	.44	0	:10-----	.10	.06	:30-----	.17	.24	:30-----	.02	.06	:40-----	.26	.18
:15-----	.46	.12	:20-----	.11	.06	:35-----	.18	.12	:40-----	.03	.06	:50-----	.29	.18
:25-----	.48	.12	:30-----	.12	.06	:40-----	.19	.12	:50-----	.05	.12	1:00-----	.30	.06
:35-----	.50	.12	:37-----	.13	.09	:50-----	.20	.06	12:00-----	.07	.12	:05-----	.32	.24
:45-----	.51	.06	:40-----	.15	.40	8:00-----	.21	.06				:10-----	.33	.12
:55-----	.52	.06	:45-----	.18	.36	:30-----	.22	.02				:20-----	.35	.12
:58-----	.53	.20	:50-----	.21	.36	9:00-----	.22	0				:30-----	.37	.12
3:00-----	.55	.60	3:00-----	.24	.18	:15-----	.24	.08	a. m.			:40-----	.38	.06
:05-----	.60	.60	:10-----	.27	.18	:25-----	.25	.06	12:10-----	.08	.06	:50-----	.40	.12
:10-----	.62	.24	:20-----	.30	.18	:35-----	.26	.06	:15-----	.09	.12	2:00-----	.42	.12
:15-----	.63	.12	:30-----	.32	.12				:20-----	.11	.24	:10-----	.44	.12
:20-----	.64	.12	:40-----	.34	.12	STORM OF OCT. 1-2, 1940			:25-----	.12	.12	:20-----	.46	.12
:30-----	.65	.06	:50-----	.36	.12				:30-----	.13	.12	:30-----	.48	.12
:40-----	.66	.06	4:00-----	.38	.12				:40-----	.14	.06	:40-----	.50	.12
:50-----	.67	.06	:10-----	.39	.06				:50-----	.15	.06	5:00-----	.50	0
:55-----	.68	.12				Oct. 1						:30-----	.51	.02
4:00-----	.70	.24	STORM OF OCT. 1, 1940			p. m.			STORM OF NOV. 8-9, 1940			:45-----	.52	.04
:05-----	.71	.12	Oct. 1			11:30-----	0	0.06	Nov. 8			6:00-----	.53	.04
:10-----	.72	.12	a. m.			12:00-----	.01	.06	p. m.			7:00-----	.54	.01
:30-----	.73	.03	3:30-----	0	0.06				10:35-----	0	0.12	8:00-----	.55	.01
:45-----	.74	.04	:40-----	.01	.06	Oct. 2			:35-----	.01	.06	:30-----	.56	.02
STORM OF SEPT. 23-24, 1940			:50-----	.02	.06	a. m.			:40-----	.02	.06	10:30-----	.56	0
Sept. 23			4:00-----	.03	.06	6:10-----	.02	0	:50-----	.02	.06	:35-----	.58	.24
p. m.			:30-----	.03	0	:30-----	.04	.06	11:00-----	.03	.06	:40-----	.59	.12
11:45-----	0	0.04	5:00-----	.04	.02	:40-----	.05	.06	:10-----	.04	.06	:45-----	.61	.24
12:00-----	.01		:15-----	.05	.04	:45-----	.06	.12	:20-----	.07	.18	:50-----	.66	.60
Sept. 24			:30-----	.06	.04	:50-----	.07	.12	:30-----	.10	.18	:55-----	.68	.36
a. m.			:45-----	.07	.04	:55-----	.08	.12	:40-----	.11	.06	11:00-----	.71	.36
12:15-----	.02	.04	6:00-----	.08	.04	7:00-----	.09	.12	:50-----	.13	.12	:10-----	.72	.06
:30-----	.03	.04	:15-----	.09	.04	:05-----	.10	.12	12:00-----	.15	.12	:30-----	.73	.03
:45-----	.04	.02	:25-----	.10	.06	:15-----	.11	.06				12:00-----	.73	0
:30-----	.05	.02	:35-----	.11	.06	:45-----	.11	0	Nov. 9			p. m.		
			:45-----	.12	.06	:50-----	.12	.12	a. m.			12:30-----	.74	.02
			7:00-----	.13	.04	:55-----	.14	.24	12:10-----	.17	.12	1:00-----	.75	.02
												:30-----	.76	.02

TABLE 68.—Rainfall at station G42R for storms producing run-off, 1939-40

Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity
STORM OF APR. 9-10, 1939			STORM OF MAY 20, 1939—Continued			STORM OF MAY 26, 1939			STORM OF JUNE 1-2, 1939—Continued			STORM OF JUNE 9, 1939—Continued		
Apr. 9			May 20			May 26			June 1			June 9		
p. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour
10:15-----	0		2:46-----	0.02	0.01	7:31-----	0	0.51	4:20-----	0.06	0.48	9:30-----	0.19	0.60
:30-----	.03	.12	:55-----	.11	.60	:38-----	.06	0	:30-----	.08	.12	:40-----	.30	.66
11:00-----	.04	.02	3:00-----	.12	.12	:45-----	.06	0	:40-----	.09	.06	:50-----	.39	.54
:30-----	.05	.02	:10-----	.13	.06	8:00-----	.11	.20	5:22-----	.09	0	10:00-----	.43	.24
12:00-----	.06	.02	5:30-----	.13	0	:15-----	.17	.24	:24-----	.10	.30	:10-----	.45	.12
Apr. 10			:35-----	.23	1.20	:30-----	.22	.20	:57-----	.10	0	:20-----	.49	.24
a. m.			:40-----	.40	2.04	:45-----	.29	.28	6:00-----	.13	.60	:24-----	.50	.15
12:15-----	.07	.04	:50-----	.51	.66	9:00-----	.35	.24	:10-----	.22	.54	11:12-----	.50	0
:30-----	.09	.08	6:00-----	.53	.12	:15-----	.38	.12	:20-----	.34	.72	:20-----	.59	.68
:45-----	.13	.16	:15-----	.55	.08	:30-----	.41	.12	:30-----	.39	.30	:30-----	.61	.12
1:00-----	.18	.20	:30-----	.61	.24	STORM OF MAY 27, 1939			:40-----	.40	.06	STORM OF JUNE 12, 1939		
:15-----	.22	.16	:45-----	.64	.12	May 27			:50-----	.42	.12	June 12		
:30-----	.27	.20	7:00-----	.65	.04	p. m.			7:00-----	.43	.06	p. m.		
:45-----	.33	.24	:30-----	.66	.02	12:11-----	0	3.00	:15-----	.44	.04	9:22-----	0	1.60
2:00-----	.38	.20	STORM OF MAY 22, 1939			:20-----	.13	.12	:30-----	.45	.06	:28-----	.16	.60
:15-----	.43	.20	May 22			:24-----	.14	.15	a. m.			:30-----	.18	.60
:30-----	.46	.12	a. m.			STORM OF JUNE 1-2, 1939			:10-----	.49	.24	:40-----	.19	.06
:45-----	.47	.04	2:36-----	0	0.75	June 1			:20-----	.50	.06	:50-----	.21	.12
3:00-----	.48	.04	:40-----	.05	2.88	p. m.			STORM OF JUNE 9, 1939			10:00-----	.22	.06
:30-----	.49	.02	:45-----	.29	1.92	12:13-----	.10	.60	June 9			STORM OF JUNE 15, 1939		
4:00-----	.50	.02	:50-----	.45	2.40	4:13-----	.02	0.60	p. m.			June 15-----	0.03	
STORM OF MAY 20, 1939			:55-----	.65	.24				8:51-----	0	0.07			
May 20			3:00-----	.67	.24				9:00-----	.01	.18			
a. m.			:40-----	.67	0				:10-----	.04	.30			
1:14-----	0		:50-----	.69	.12				:20-----	.09				
2:00-----	.01	0.01	4:02-----	.69	0									
			:10-----	.71	.15									



TABLE 68.—Rainfall at station G42R for storms producing run-off, 1939-40—Continued

Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity
STORM OF JUNE 20, 1939			STORM OF JULY 4, 1939			STORM OF AUG. 14-15, 1939—Continued			STORM OF APR. 22, 1940			STORM OF MAY 18, 1940		
June 20			July 4			Aug. 15			Apr. 22			May 18		
p. m.	Inches	Inches per hour	p. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour	a. m.	Inches	Inches per hour
1:23	0		11:47	0		12:20	0.19	0.90	7:00	0		1:30	0	
:30	.05	0.43	:50	.08	1.60	:21	.20	.60	:05	.02	0.24	:40	.02	0.12
:40	.12	.42	:55	.14	.72	1:06	.20	0	:10	.04	.24	:45	.03	.12
:50	.19	.42	:57	.15	.30	:10	.21	.15	:15	.06	.24	:50	.04	.12
2:00	.24	.30	STORM OF AUG. 1, 1939			:20	.23	.12	:20	.07	.12	2:00	.05	.06
:10	.27	.18	Aug. 1			:40	.24	.03	:30	.12	.30	3:00	.06	.01
:20	.28	.06	p. m.			2:00	.25	.03	:40	.16	.24	:30	.06	0
4:08	.28	0	8:01	0		:15	.28	.12	:50	.20	.24	4:00	.08	.04
:10	.29	.30	:02	.02	1.20	3:15	.28	0	8:00	.24	.24	:30	.10	.04
:12	.31	.60	:04	.16	4.20	STORM OF MAR. 1-2, 1940			:05	.27	.36	:40	.11	.06
:15	.38	1.40	:05	.18	1.20	Mar. 1			:10	.28	.12	:50	.12	.06
:20	.48	1.20	:07	.22	1.20	a. m.			:15	.29	.12	5:00	.13	.06
:25	.52	.48	STORM OF AUG. 7-8, 1939			11:30	0		:20	.30	.12	:05	.14	.12
:30	.54	.24	Aug. 7			12:00	.01	0.02	10:00	.31	.01	:10	.15	.12
:35	.62	.96	p. m.			p. m.			p. m.			:15	.16	.12
:40	.67	.60	1:45	0		12:30	.02	.02	3:20	.31	0	:20	.17	.12
:45	.70	.36	:56	.03	0.16	1:00	.04	.04	:25	.33	.24	:25	.18	.12
5:00	.72	.08	2:42	.03	0	:30	.05	.02	:30	.37	.48	:30	.19	.12
STORM OF JUNE 21, 1939			:50	.15	.90	2:30	.05	0	:35	.38	.12	:45	.21	.08
June 21			:54	.19	.60	3:00	.06	.02	:40	.39	.12	6:00	.22	.04
p. m.			3:55	.19	0	5:00	.07	0	:43	.40	.20	:15	.23	.04
7:13	0		4:00	.20	.12	6:00	.08	.01	:45	.43	.90	:30	.24	.04
:15	.04	1.20	:13	.20	0	7:00	.10	.02	:50	.44	.12	:45	.25	.04
:20	.05	.12	:15	.21	.30	8:00	.14	.04	5:30	.44	0	STORM OF MAY 20, 1940		
:25	.06	.12	:30	.22	.04	9:00	.18	.04	6:30	.46	.02	May 20		
:30	.07	.12	:36	.23	.10	10:00	.23	.05	7:30	.47	.01	p. m.		
:40	.08	.06	:45	.32	.60	11:00	.28	.05	:50	.48	.03	6:30	0	
:50	.18	.60	5:00	.34	.08	12:00	.31	.03	8:00	.49	.06	:40	.01	0.06
8:00	.38	1.20	:15	.36	.08	Mar. 2			STORM OF MAY 17, 1940			:45	.02	.12
:10	.40	.12	:20	.39	.36	a. m.			a. m.			:50	.03	.12
STORM OF JUNE 25, 1939			:25	.46	.84	1:00	.34	.03	2:10	0		:55	.04	.12
June 25			:30	.55	1.08	2:00	.35	.01	:12	.03	0.90	7:00	.05	.12
a. m.			:45	.63	.32	5:00	.35	0	:15	.06	.60	:05	.06	.12
1:06	0		:50	.65	.24	6:00	.36	.01	:20	.12	.72	:10	.07	.12
:10	.02	0.30	6:00	.66	.06	7:00	.38	.02	:25	.18	.72	:15	.08	.12
:20	.23	1.26	:10	.67	.06	8:00	.39	.01	:30	.20	.24	:20	.10	.24
:30	.43	1.20	7:36	.67	0	9:00	.40	.01	:35	.22	.24	:25	.12	.24
:40	.48	.30	:45	.72	.33	10:00	.41	.01	:40	.23	.12	:30	.14	.24
:50	.49	.06	8:00	.80	.32	11:00	.44	.03	:45	.24	.06	:35	.16	.24
2:00	.50	.06	:15	.86	.24	12:00	.46	.02	:50	.25	.12	:40	.18	.24
:10	.51	.06	:30	.88	.08	STORM OF APR. 10, 1940			:55	.26	.12	:45	.20	.24
:20	.52	.06	:54	.88	0	Apr. 10			3:00	.26	.12	:50	.22	.24
:30	.54	.12	9:00	.93	.50	p. m.			:05	.27	.12	STORM OF JUNE 8, 1940		
:45	.56	.08	:10	.95	.12	1:00	.47	.01	:10	.29	.24	June 8		
:56	.58	.08	11:30	.95	0	STORM OF APR. 16-17, 1940			:15	.31	.24	p. m.		
3:00	.61	.12	:45	.97	.08	Apr. 16			:20	.33	.24	8:19	0	
:30	.66	.20	12:00	.98	.04	p. m.			:25	.35	.24	:20	.03	1.80
:45	.69	.12	STORM OF AUG. 11, 1939			11:00	0		:30	.37	.24	:25	.22	2.28
4:00	.70	.04	Aug. 11			:15	.01	0.04	:35	.38	.12	:30	.36	1.68
:15	.71	.04	p. m.			:30	.02	.04	:40	.40	.24	:35	.55	2.28
STORM OF JULY 1, 1939			10:08	0		:40	.03	.06	:45	.42	.24	:40	.62	.40
July 1			:10	.10	3.00	:45	.04	.12	:50	.44	.24	:45	.64	.24
a. m.			:15	.27	2.04	:50	.05	.12	:55	.46	.24	:50	.66	.24
1:40	0		:20	.38	1.32	12:00	.06	.06	4:00	.48	.24	:55	.69	.36
:50	.02	0.12	:23	.41	.60	STORM OF APR. 10, 1940			:05	.50	.24	9:00	.71	.24
:57	.04	.17	STORM OF AUG. 14-15, 1939			Apr. 10			:10	.52	.24	:10	.75	.24
2:58	.04	0	Aug. 14			a. m.			:15	.54	.24	:15	.79	.24
:30	.07	.90	p. m.			12:10	.07	.06	:20	.57	.36	:20	.83	.24
:06	.09	.20	11:46	0		:15	.08	.12	:25	.59	.24	:25	.87	.24
4:30	.09	0	:50	.06	0.90	:20	.11	.36	:30	.63	.48	:30	.89	.12
:45	.10	.04	:55	.11	.60	:30	.16	.30	:35	.67	.48	:35	.91	.12
5:00	.11	.04	12:00	.13	.24	:40	.21	.30	:40	.70	.36	:40	.92	.12
:04	.12	.15	STORM OF APR. 22, 1940			:50	.26	.30	:45	.73	.36	:45	.94	.12
:06	.15	.90	Apr. 22			1:00	.30	.24	:50	.76	.36	:50	.96	.12
:10	.17	.30	a. m.			:10	.33	.18	:55	.79	.36	:55	.98	.12
:15	.25	.96	12:05	.15	.24	:20	.36	.18	7:00	1.00	.12	7:00	1.00	.12
:20	.33	.96	:18	.16	.05	:30	.39	.18	:05	.83	.24	:20	1.03	.36
:25	.49	1.92	STORM OF MAY 18, 1940			:40	.41	.18	:10	.85	.24	:30	1.04	.12
:30	.54	.60	May 18			4:00	.42	.02	:15	.87	.24	:40	1.06	.04
:35	.63	1.08	p. m.			:30	.43	.02	:20	.88	.12	:50	1.06	.04
:40	.68	.60	6:30			3:30	.44	.03	:25	.89	.06	5:38	0	
:50	.72	.24	7:00			4:00	.45	.04	:30	.90	.06	:40	.03	0.90
:56	.74	.20	8:00			4:30	.46	.05	:35	.91	.06	:45	.07	1.20
6:26	.74	0	9:00			5:00	.48	.24	:40	.92	.12	:50	.09	.60
:28	.76	.60	10:00			5:30	.50	.24	:45	.94	.12	:55	.16	.84
STORM OF JUNE 22, 1940			11:00			6:00	.52	.24	:50	.96	.12	:57	.19	.60
June 22			p. m.			6:35	.54	.24	:55	.98	.12	6:00	.23	1.20
p. m.			8:19			7:00	.56	.24	:05	1.00	.12	:11	.27	1.20
5:38	0		:20			7:30	.58	.24	:10	1.03	.36	:30	.30	.60
:40	.03	0.90	:25			8:00	.60	.24	:15	1.04	.12	:45	.31	.05
:42	.07	1.20	:30			8:30	.62	.24	:20	1.06	.04			
:45	.09	.60	:35			9:00	.64	.24						
:50	.16	.84	:40											
:55	.19	.60	:45											
:57	.27	1.20	:50											
:30	.30	.60	:55											
:45	.31	.05	:05											
:50	.32	.06	:10											
:55	.33	.07	:15											
:00	.34	.08	:20											
:05	.35	.09	:25											
:10	.36	.10	:30											
:15	.37	.11	:35											
:20	.38	.12	:40											



TABLE 68.—Rainfall at station G42R for storms producing run-off, 1939-40—Continued

Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity	Date and time	Accumulated depth	Intensity
STORM OF JUNE 22, 1940 —Continued			STORM OF AUG. 12, 1940— Continued			STORM OF SEPT. 22-23, 1940—Continued			STORM OF OCT. 1, 1940— Continued			STORM OF OCT. 9-10, 1940 —Continued		
June 22			Aug. 12			Sept. 23			Oct. 1			Oct. 10		
<i>p. m.</i>	<i>Inches</i>	<i>Inches per hour</i>	<i>a. m.</i>	<i>Inches</i>	<i>Inches per hour</i>	<i>a. m.</i>	<i>Inches</i>	<i>Inches per hour</i>	<i>a. m.</i>	<i>Inches</i>	<i>Inches per hour</i>	<i>a. m.</i>	<i>Inches</i>	<i>Inches per hour</i>
6:15	0.36	0.75	7:50	0.25	0.06	3:30	0.69	0.06	6:45	0.11	0.04	12:30	0.14	0.12
:20	.56	2.40	8:25	.25	0	:40	.70	.06	7:00	.12	.04	:40	.15	.06
:21	.60	2.40	:30	.29	.48	:50	.71	.06	:15	.13	.04	:50	.16	.06
:25	.70	1.50	:35	.33	.48	:55	.72	.12	:25	.14	.06			
:27	.73	.90	:40	.34	.12	4:00	.74	.24	:30	.16	.24			
:30	.79	1.20	:45	.35	.12	:05	.75	.12	:35	.18	.24			
:35	.82	.36	:50	.37	.24	:10	.77	.24	:40	.19	.12			
:37	.83	.30	9:00	.38	.06	:30	.78	.03	:45	.20	.12			
:40	.88	1.00							:50	.21	.12			
:42	.91	.90							8:00	.22	.06			
:45	.93	.40							:30	.22	0			
:50	.97	.48							:45	.23	.04			
:55	.98	.12							9:00	.24	.04			
7:00	1.01	.36							:10	.25	.06			
:05	1.02	.12							:20	.26	.06			
:10	1.04	.24							:30	.27	.06			
:20	1.06	.12							:40	.28	.06			
:30	1.08	.12												
:40	1.10	.12												
STORM OF JULY 26-27, 1940									STORM OF OCT. 1-2, 1940					
July 26			Sept. 22			Sept. 23			Oct. 1			Oct. 2		
<i>p. m.</i>			<i>p. m.</i>			<i>p. m.</i>			<i>p. m.</i>			<i>a. m.</i>		
9:40	0	0.36	5:40	0	0.06	12:00	0		11:40	0	0.06	6:25	.02	0
:45	.03	.24	:50	.01	.06	2:30	.01	0.02	:50	.01	.06	:30	.03	.12
:50	.05		6:00	.02	.06	1:00	.02	.02	12:00	.02		:35	.04	.12
			:10	.03	.06	:10	.03	.06	:05	.04		:40	.05	.12
July 27			:15	.04	.12	:15	.04	.12	:15	.05		:45	.06	.12
<i>a. m.</i>			:20	.05	.12	:20	.05	.12	:20	.06		:50	.08	.24
1:20	.05	0	:30	.06	.06	:30	.06	.06	:30	.06		1:00	.12	.32
:25	.06	.12	:40	.07	.06	:40	.07	.06	:40	.07		:10	.13	.24
:30	.07	.12	:50	.08	.06	:50	.08	.06	:50	.08		:20	.14	.36
:35	.08	.12	7:00	.09	.06	7:00	.09	.06	7:00	.13	.24	:30	.15	.36
:40	.12	.48	:30	.10	.02	:35	.07	.12	:35	.14	.12	:40	.16	.36
2:28	.12	0	:40	.11	.02	:40	.08	.12	:40	.15	.02	:50	.18	.36
:30	.13	.30	11:30	.11	0	:50	.09	.06	:50	.16	.04	2:00	.20	.36
:35	.14	.12	:35	.12	.12	:55	.10	.12	6:25	.16		:10	.21	.36
:45	.15	.06	:40	.13	.12	2:00	.11	.12	:30	.03	.12	:20	.23	.36
:50	.16	.12	:50	.16	.18	:10	.12	.06	:35	.04	.12	:30	.26	.36
:55	.21	.60	12:00	.19	.18	:15	.13	.12	:40	.05	.12	:40	.28	.36
3:10	.21	0				:20	.15	.24	:45	.06	.12	:50	.30	.36
:15	.25	.48				:25	.17	.24	:50	.08	.24	1:00	.32	.36
:20	.29	.48				:30	.19	.24	:55	.11	.36	:10	.34	.36
STORM OF AUG. 12, 1940						:40	.21	.12	7:00	.13	.24	:20	.35	.06
Aug. 12			Sept 23			:50	.23	.12	:30	.14	.12	:30	.36	.06
<i>a. m.</i>			<i>a. m.</i>			3:00	.25	.12	:45	.15	.02	:40	.38	.12
6:25	0	0.24	12:10	.22	.18	:10	.28	.18	:50	.16	.04	:50	.40	.12
:30	.02	.02	:20	.25	.18	:20	.31	.18	:55	.11	.36	2:00	.41	.06
7:05	.03	.02	:30	.28	.18	:30	.34	.18	:50	.08	.24	:10	.43	.12
:10	.04	.12	:40	.30	.12	:40	.37	.18	:55	.14	.12	:20	.45	.12
:13	.05	.20	:50	.32	.12	:45	.38	.12	:50	.15	.02	:30	.47	.12
:15	.08	.90	1:00	.34	.12	:50	.39	.12	:55	.16	.04	:40	.49	.12
:20	.13	.60	:25	.35	.02	:55	.40	.12	6:25	.16		3:00	.50	.03
:25	.18	.60	:30	.37	.24	4:00	.41	.12	7:00	.01	0.12	5:00	.50	0
:30	.20	.24	:35	.39	.24				:40	.02	.12	:30	.51	.02
:35	.22	.24	:40	.41	.24				:45	.02	.12	:40	.52	.02
:40	.24	.24	:45	.42	.12				:50	.04	.24	7:00	.53	.01
			:50	.43	.12				:55	.05	.12	8:00	.54	.01
			:55	.44	.12				12:00	.06	.12	:30	.55	.02
			2:00	.46	.24							10:30	.55	0
			:10	.46	0							:40	.56	.06
			:15	.48	.24							:45	.58	.24
			:20	.49	.12							:50	.60	.24
			:25	.50	.12							:55	.63	.36
			:30	.51	.12							11:00	.65	.24
			:35	.52	.12							:05	.67	.24
			:40	.53	.12							:10	.68	.12
			:45	.54	.12							:20	.69	.06
			:50	.55	.12							12:00	.70	.02
			:55	.56	.12									
			3:00	.58	.24									
			:05	.62	.48									
			:10	.65	.36									
			:15	.67	.24									
			:20	.68	.12									







